Mid-Year Real Estate Review

With economist Paul Brewbaker

...tariffs, inflation, real estate projections!

By invitation only

Friday, June 13, 2025
11:30 a.m. – 1:30 p.m.
Oahu Country Club
Lunch & Presentation – $45.00
*** BY INVITATION ONLY * RSVP Required ***
(808) 733-7060, HIREC@hawaiirealtors.com

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June 13, 2025

Mid Year Real Estate Review

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HOUSING STATISTICS

HONOLULU BOARD OF REALTORS

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ACTIVE INVENTORY

MAY 2025

Homes	For Sale	Compared to May 2024	Compared to May 2023	Compared to May 2019
Homes	818	Up 28%	Up 51%	Down 48%

Condos	For Sale	Compared to May 2024	Compared to May 2023	Compared to May 2019
Condos	2,556	Up 55%	Up 128%	Up 9%

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MONTHS OF REMAINING INVENTORY

MAY 2025

Homes	May 2025	May 2024	May 2021	May 2019
Homes	3.6	2.9	1.2	3.6
Condos	**May 2025**	**May 2024**	**May 2021**	**May 2019**
Condos	7.1	4.4	2.3	3.7

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What's next???

Paul Brewbaker

Principal, TZ Economics

- Principal at TZ Economics
- Former Chief Economist for Bank of Hawaii
- Graduate of Stanford University
- PhD from the University of Hawaii

Oahu Mid-Year Real Estate Review

A presentation prepared by

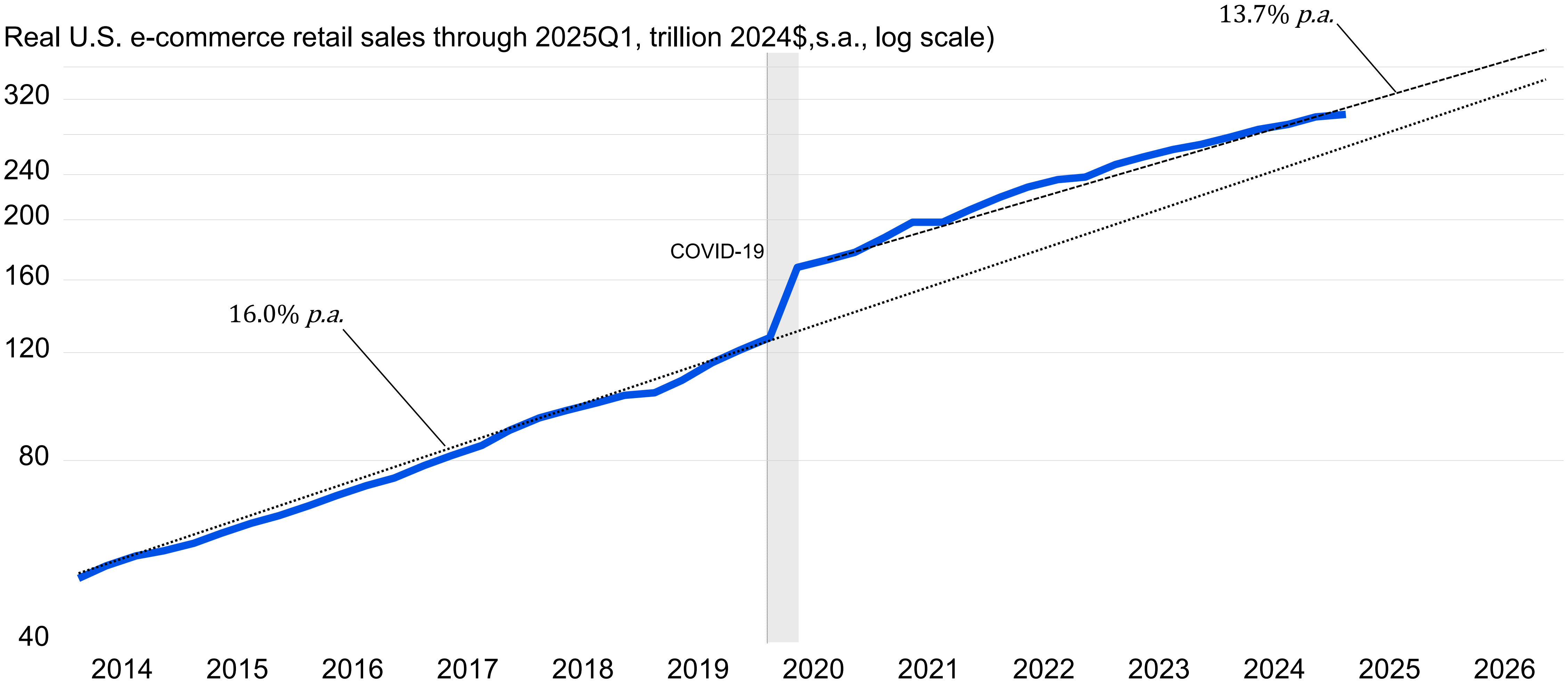
Paul H. Brewbaker, Ph.D., CBE
TZ Economics, Kailua, Hawaii

Oahu Country Club
June 13, 2025

Structural housing change legacies of the covid pandemic

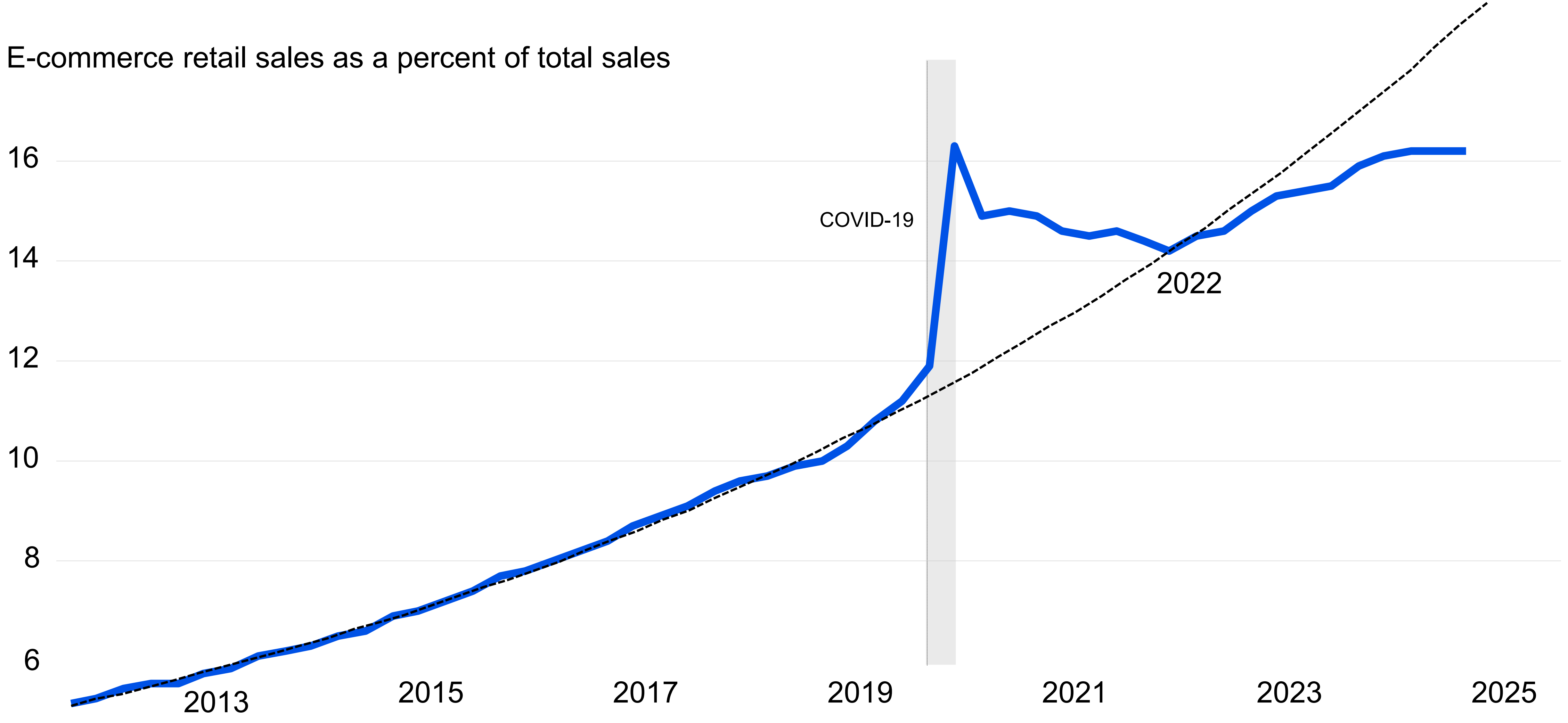
- Everybody seemed happy to go “back to normal,” post-pandemic
- Problem: we didn’t
- Hysteresis: changes you think are temporary which turn out to be permanent
- Governments—state and county still in denial that they *cause* housing shortages

Adjusted for inflation, real e-commerce retail sales jumped during the pandemic, converged on slightly slower real growth path thereafter



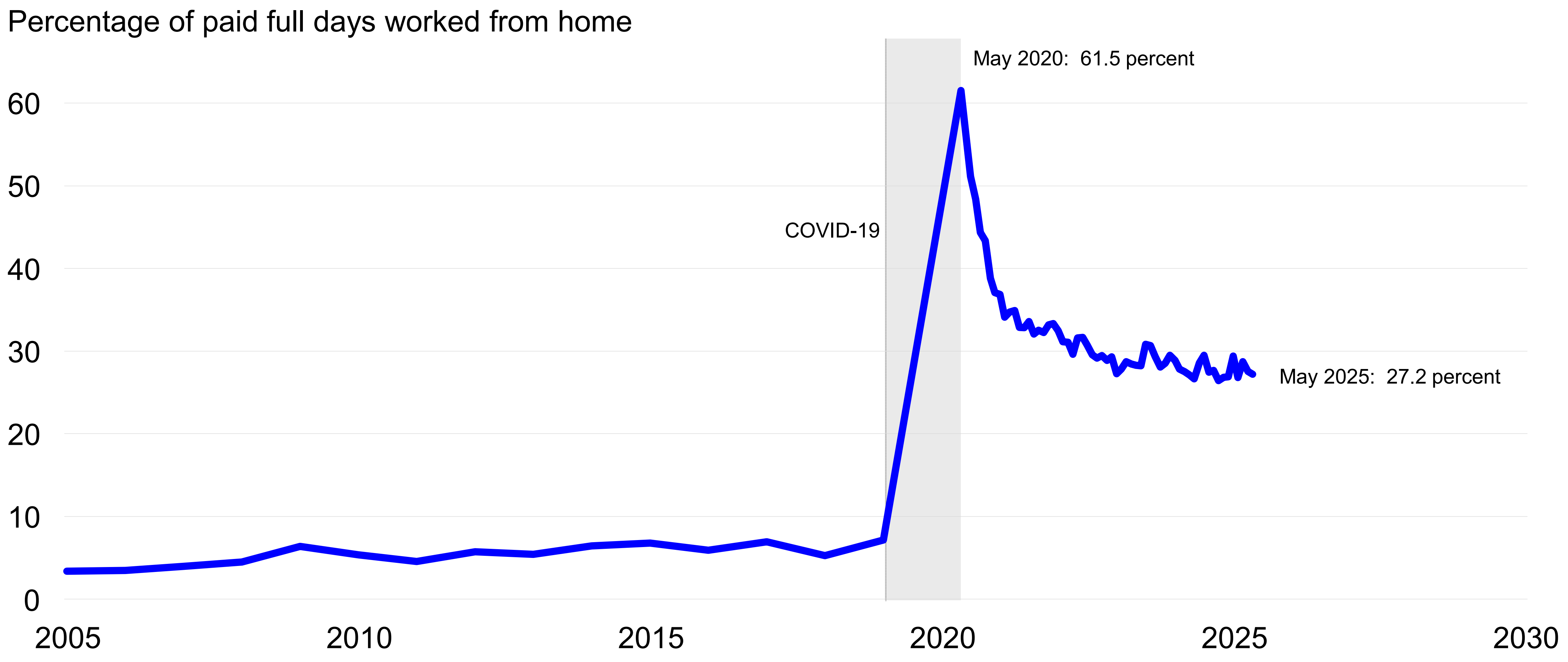
Sources: U.S. Census Bureau, E-Commerce Retail Sales [ECOMSA], U.S. Bureau of Labor Statistics, Consumer Price Index for All Urban Consumers: All Items in U.S. City Average [CPIAUCSL], retrieved from FRED, Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/ECOMSA and https://fred.stlouisfed.org/series/CPIAUCSL). Real annualized growth rates 160% (2012-2019), 13.7% (2020Q3-2024Q4).

Rising from < 1 percent 25 years ago, e-commerce has leveled up at just over 16 percent of retail, after pandemic overshoot



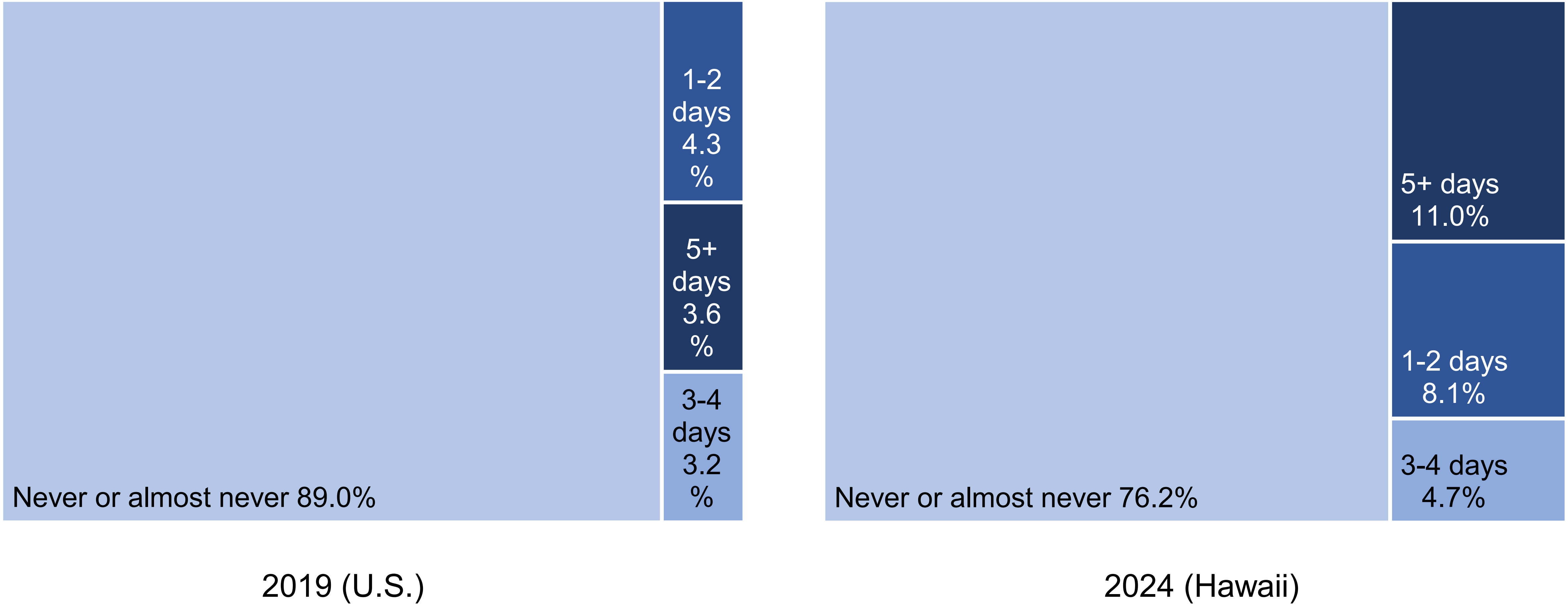
Sources: U.S. Census Bureau, e-commerce retail sales as a percent of total sales [ECOMPCTSA], retrieved from FRED, Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/ECOMPCTSA), quarterly data through 2025Q1. As a share of total retail sales, e-commerce was growing 10.5 percent per annum during the 2010s economic expansion (2010-2017, projected to 2025)

Another big behavioral shift that did not revert to the old normal: U.S. working from home share overshot, settled at just under 30 percent



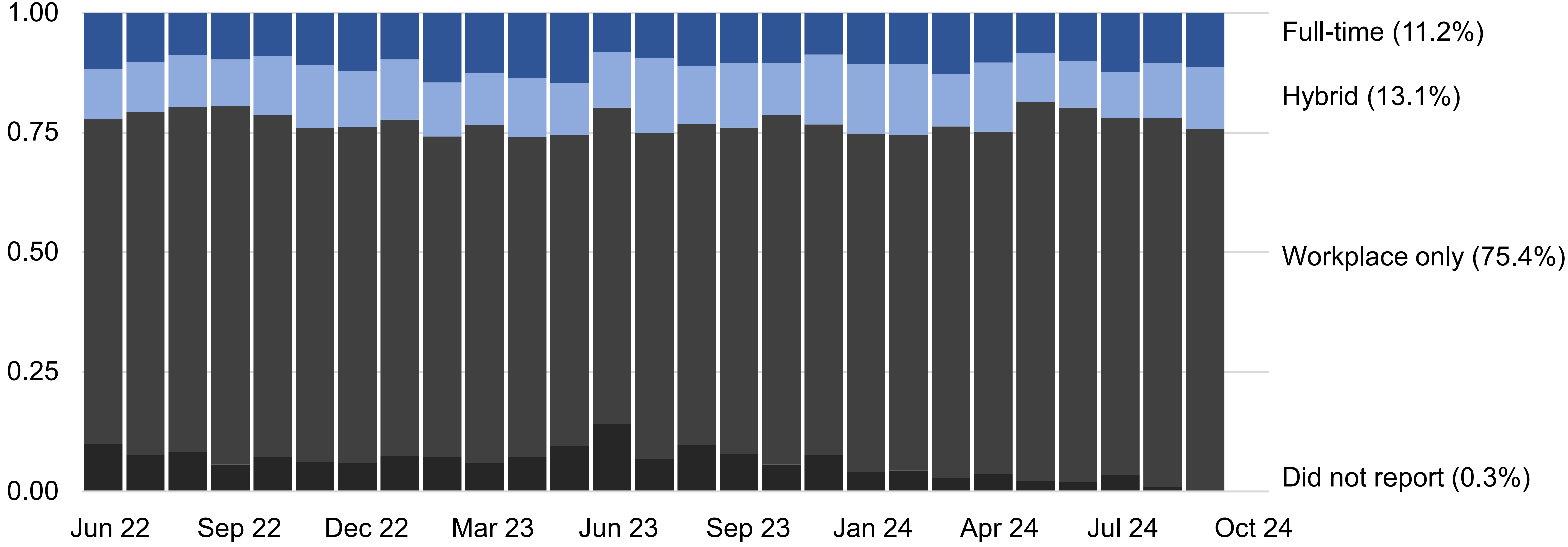
Sources: Barrero, Jose Maria, Nicholas Bloom, and Steven J. Davis (2021). "Why working from home will stick," *National Bureau of Economic Research Working Paper* 28731 (https://www.nber.org/papers/w28731), monthly data updates through May 2025 from https://wfhresearch.com/, and pre-pandemic data from Bureau of Labor Statistics *American Time Use Survey* (https://www.bls.gov/tus/).

Pre-covid, 90%of U.S. workers never/almost never worked from home, in 2024, 75% of Hawaii workers never/almost never worked from home



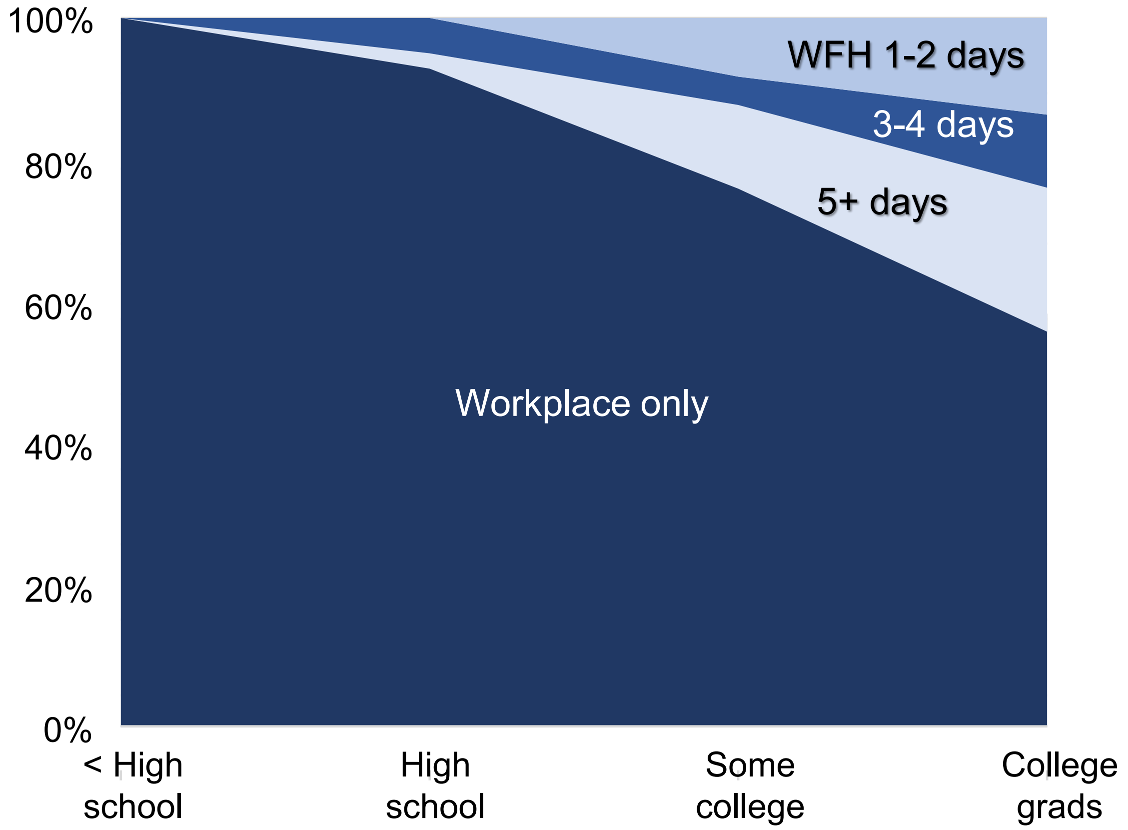
Sources: U.S. Bureau of Labor Statistics *American Time Use Survey* (https://www.bls.gov/tus/), Bureau of the Census, Household Pulse Surveys (https://www.census.gov/programs-surveys/household-pulse-survey/data.html); latest data from Household Pulse Survey August 20 - September 16, 2024 (https://www.census.gov/data/tables/2024/demo/hhp/cycle09.html).

Hawaii working in workplaces and from home—full-time and hybrid—remained steady in 2022-24 Census Bureau Household Pulse Surveys

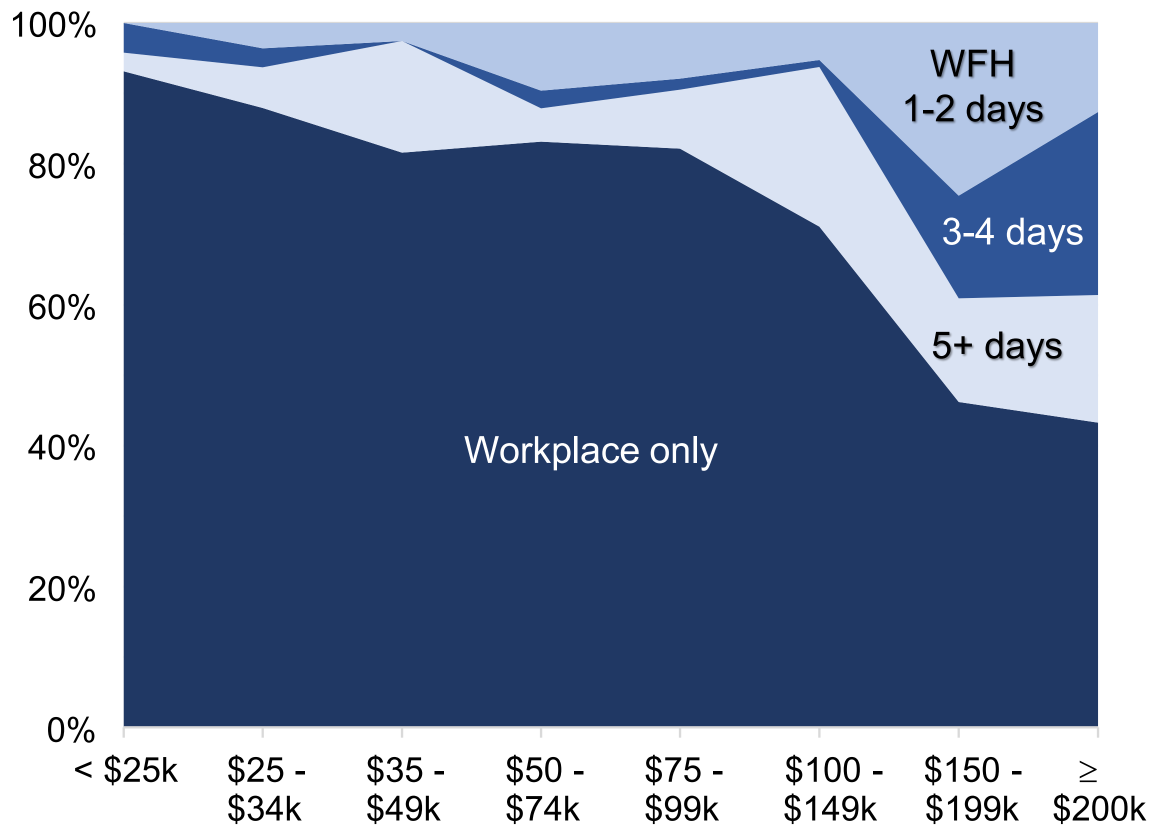


Sources: U.S. Bureau of the Census, Household Pulse Surveys (https://www.census.gov/programs-surveys/household-pulse-survey/data.html); latest data shown are from Household Pulse Survey August 20 - September 16, 2024 (https://www.census.gov/data/tables/2024/demo/hhp/cycle09.html). The September 2024 cycle was the last to be fielded.

Hawaii WFH by education, income: tasks, occupations, industries with remote workers distinctly spatial pattern of housing valuations



By educational attainment

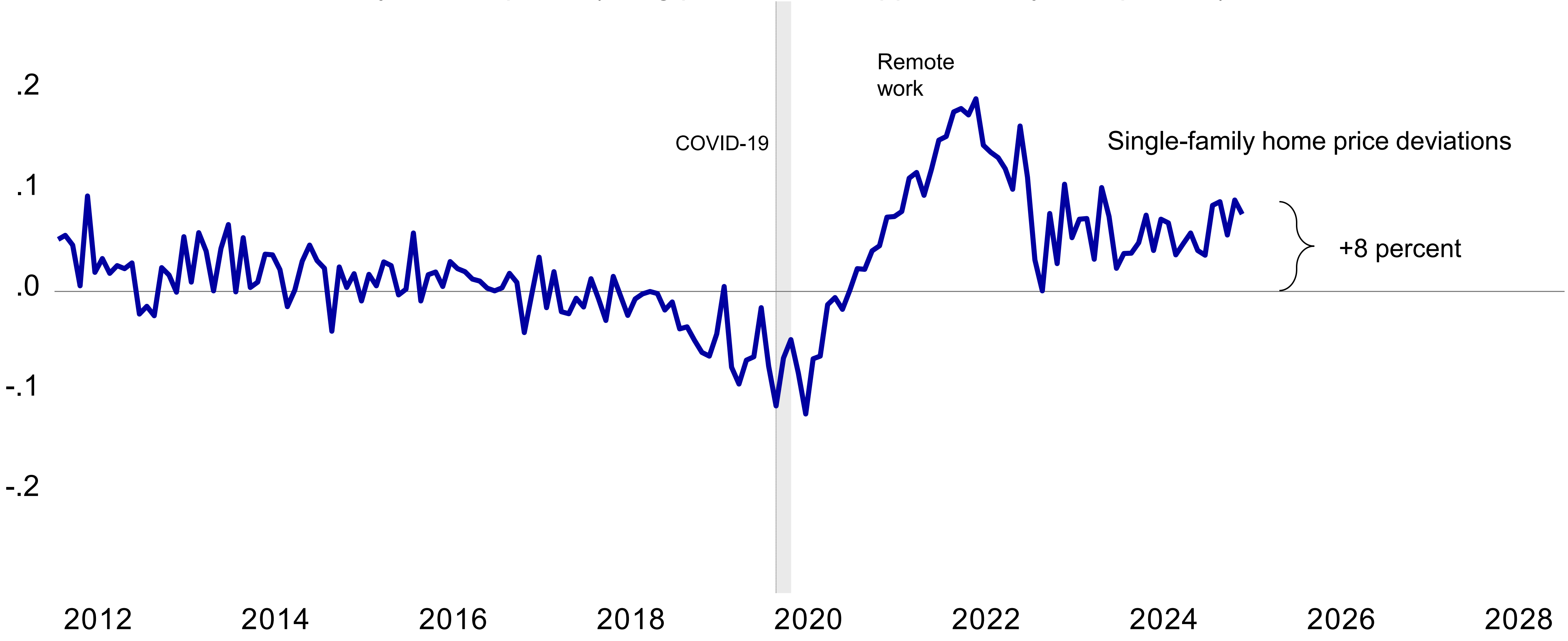


By household income

Sources: U.S. Bureau of the Census, Household Pulse Surveys (https://www.census.gov/programs-surveys/household-pulse-survey/data.html); data shown are from Household Pulse Survey August 20 - September 16, 2024 (https://www.census.gov/data/tables/2024/demo/hhp/cycle09.html).

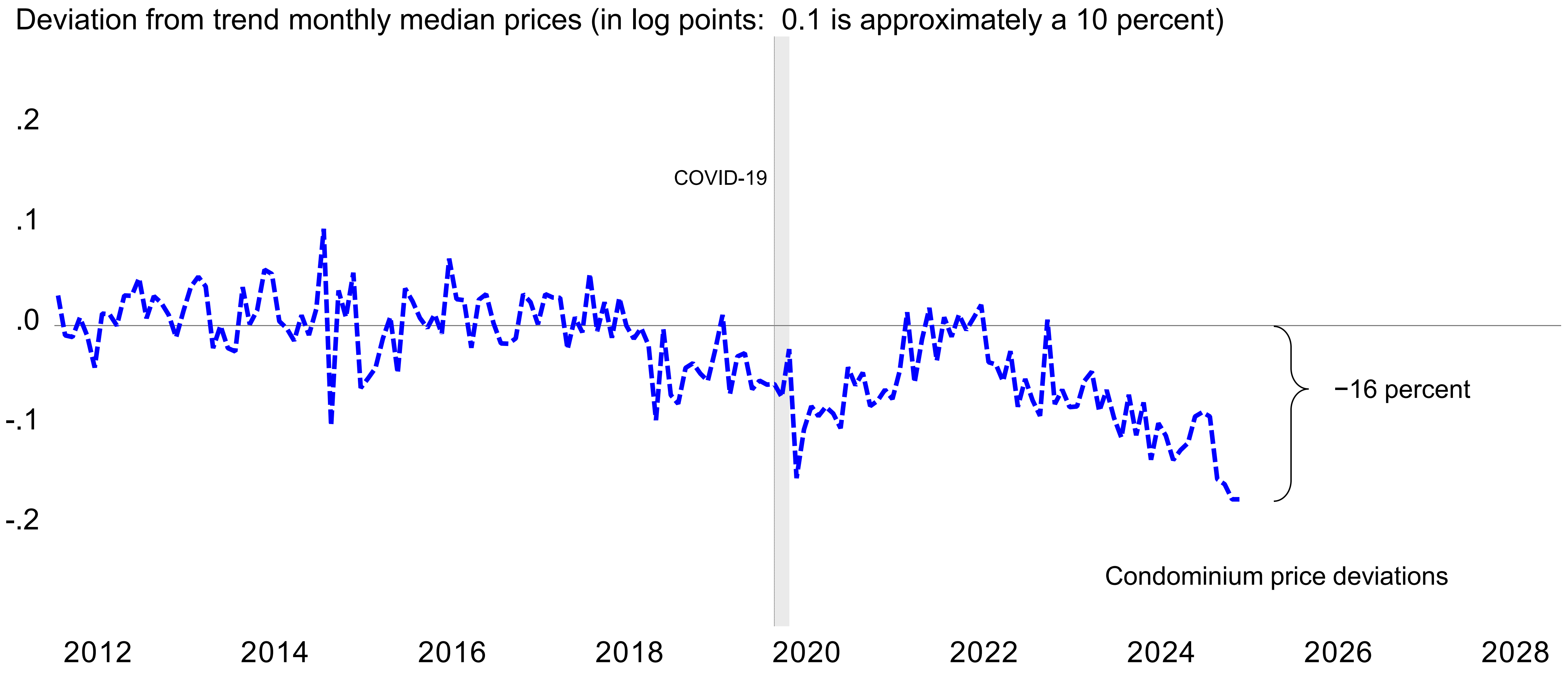
Post-pandemic divergence of the *paths* of Oahu median single-family home sales prices and condominium sales prices: the new normal

Deviation from trend monthly median prices (in log points: 0.1 is approximately a 10 percent)



Sources: Honolulu Board of Realtors, Hawaii DBEDT (http://dbedt.hawaii.gov/economic/mei/), monthly median existing home sales prices seasonally adjusted using Census X-13 ARIMA filter through May 2025, with stationary trend regressions on pre-pandemic interval 2012 – 2018(June), and detrended prices (in log points) by TZ Economics.

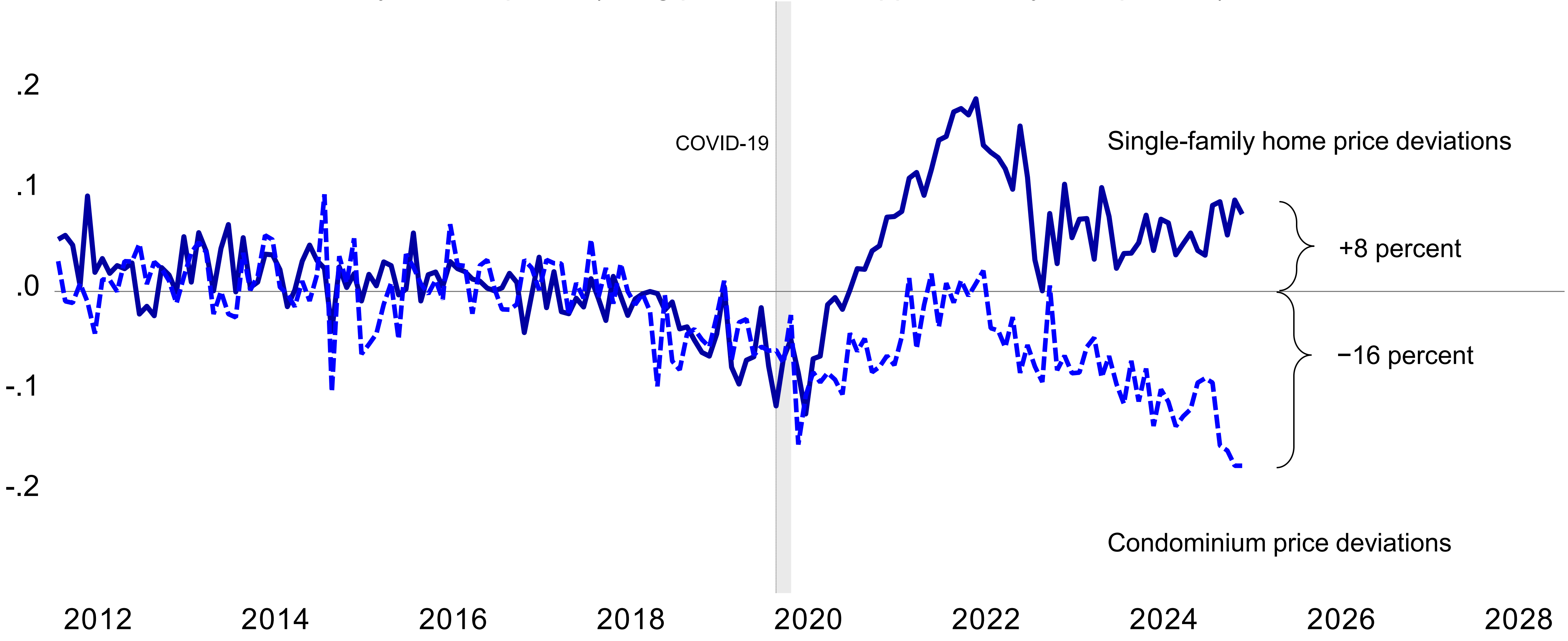
Post-pandemic divergence of the *paths* of Oahu median single-family home sales prices, condominium sales prices: not interest rates!



Sources: Honolulu Board of Realtors, Hawaii DBEDT (http://dbedt.hawaii.gov/economic/mei/), monthly median existing home sales prices seasonally adjusted using Census X-13 ARIMA filter through May 2025, with stationary trend regressions on pre-pandemic interval 2012 – 2018(June), and detrended prices (in log points) by TZ Economics.

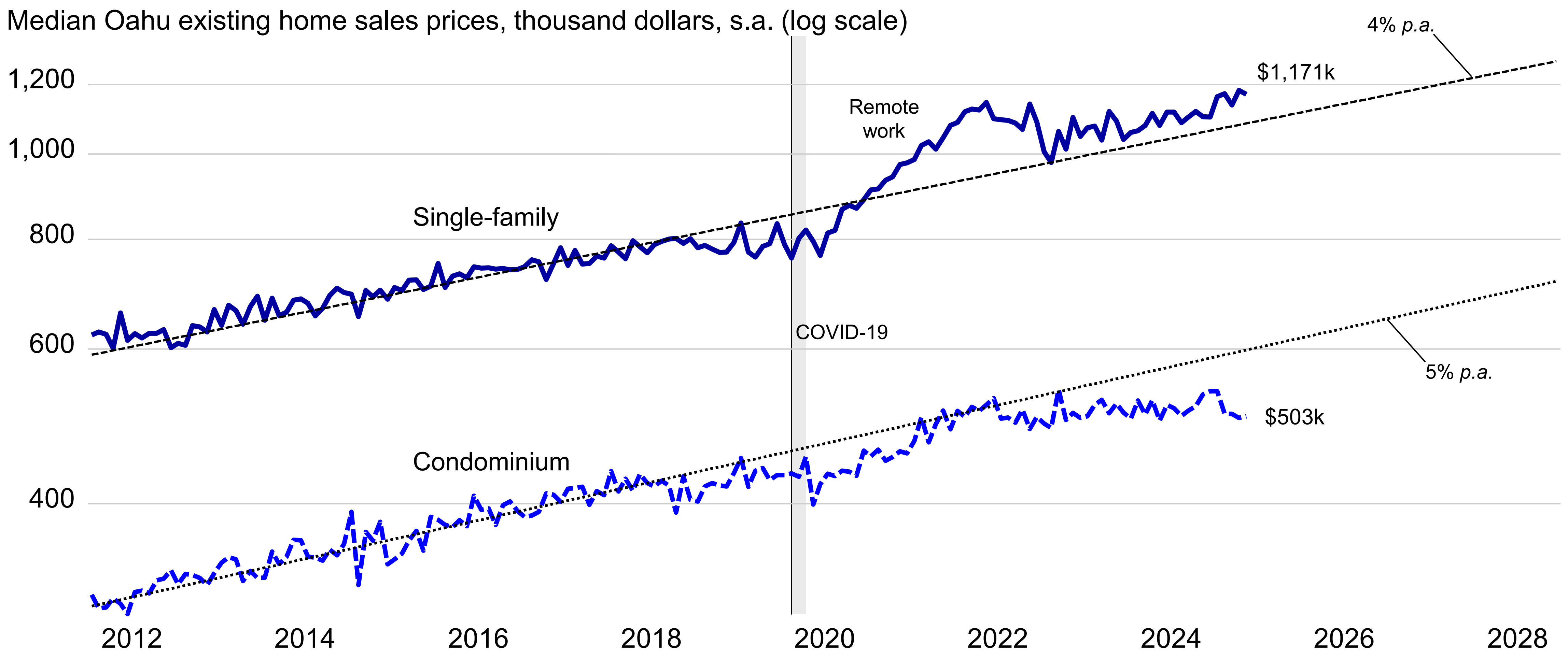
Post-pandemic divergence of the *paths* of Oahu median single-family home sales prices and condominium sales prices leaves big spread

Deviation from trend monthly median prices (in log points: 0.1 is approximately a 10 percent)



Sources: Honolulu Board of Realtors, Hawaii DBEDT (http://dbedt.hawaii.gov/economic/mei/), monthly median existing home sales prices seasonally adjusted using Census X-13 ARIMA filter through May 2025, with stationary trend regressions on pre-pandemic interval 2012 – 2018(June), and detrended prices (in log points) by TZ Economics.

Oahu SF median existing home sales prices trajectories since 2022 *above*, parallel to 2010s pre-pandemic trend, but not condo prices



Sources: Honolulu Board of Realtors, Hawaii DBEDT (http://dbedt.hawaii.gov/economic/mei/), monthly median existing home sales prices seasonally adjusted using Census X-13 ARIMA filter through May 2025, with stationary trend regressions on pre-pandemic interval 2012 – 2018(June), by TZ Economics.

Understanding displacement of equilibrium valuation trajectories

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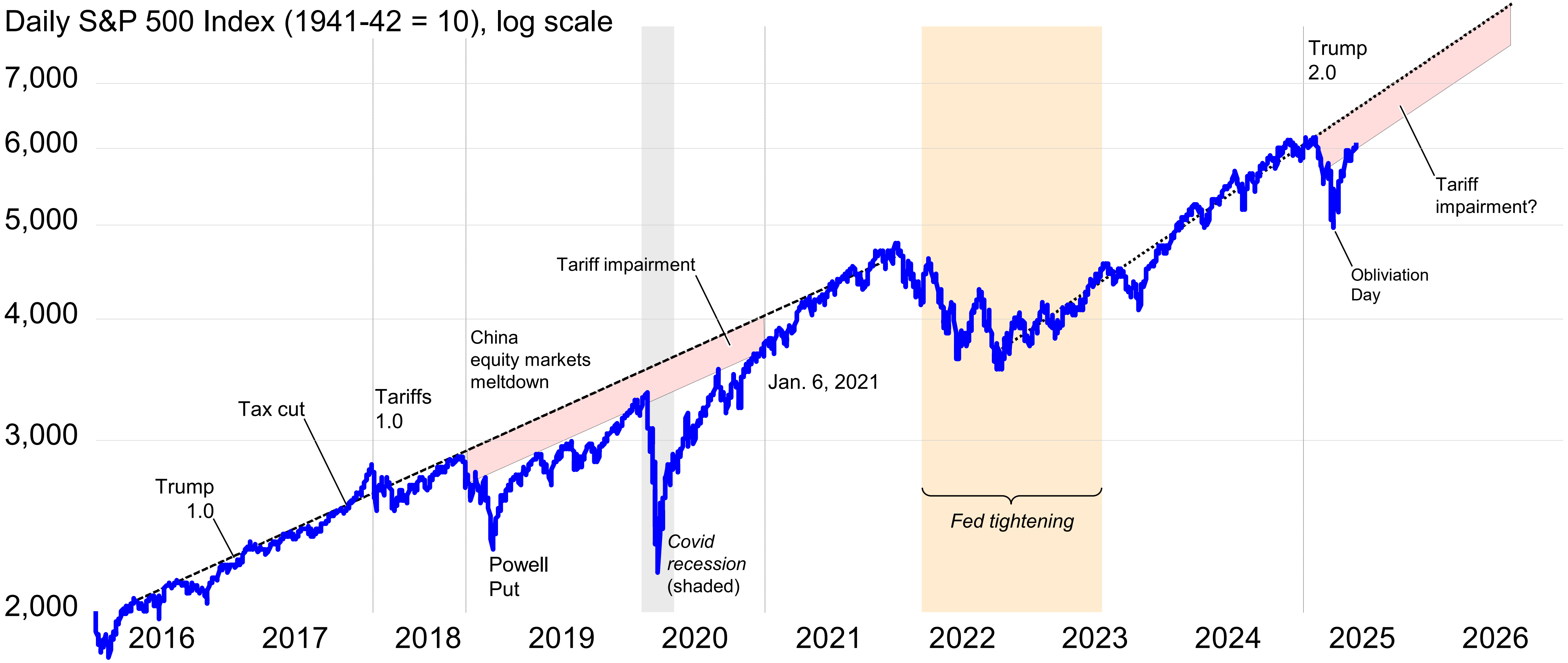
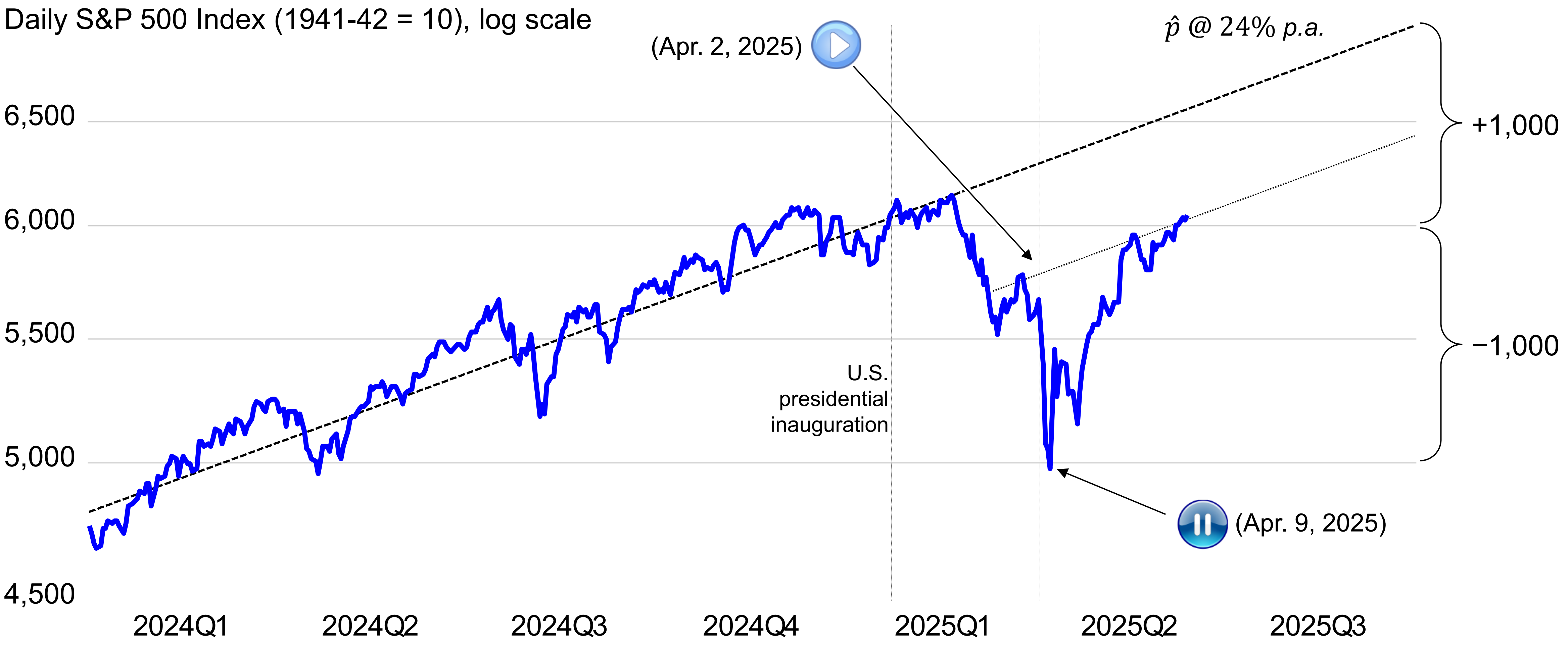
U.S. equity markets response to Trump 2.0 fiscal and trade policy uncertainties, geopolitical betrayals: valuation trajectory impairment



Sources: S&P Dow Jones Indices LLC, S&P 500 [SP500], retrieved from FRED, Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/SP500), daily closing values through Thursday, June 12, 2025; trend regression estimates by TZE, April 1, 2016 – October 1, 2028, and October 5, 2022 – November 5, 2024 (Election Day), separately yielding annualized daily returns of 15 percent and 24 percent, respectively.

U.S. equity market response to Trump 2.0 fiscal and trade policy uncertainties, geopolitical betrayals, “Obliviation Day” (4/2/205)



Sources: S&P Dow Jones Indices LLC, S&P 500 [SP500], retrieved from FRED, Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/SP500), daily closing values through Thursday, June 12, 2025; nonstationary trend regression estimates by TZ Economics (October 5, 2022 – November 5, 2024 (presidential election)) yielding annualized daily return of 24 percent projected to end-September 2025.

Adjusting for inflation, Oahu housing valuations and the very long run

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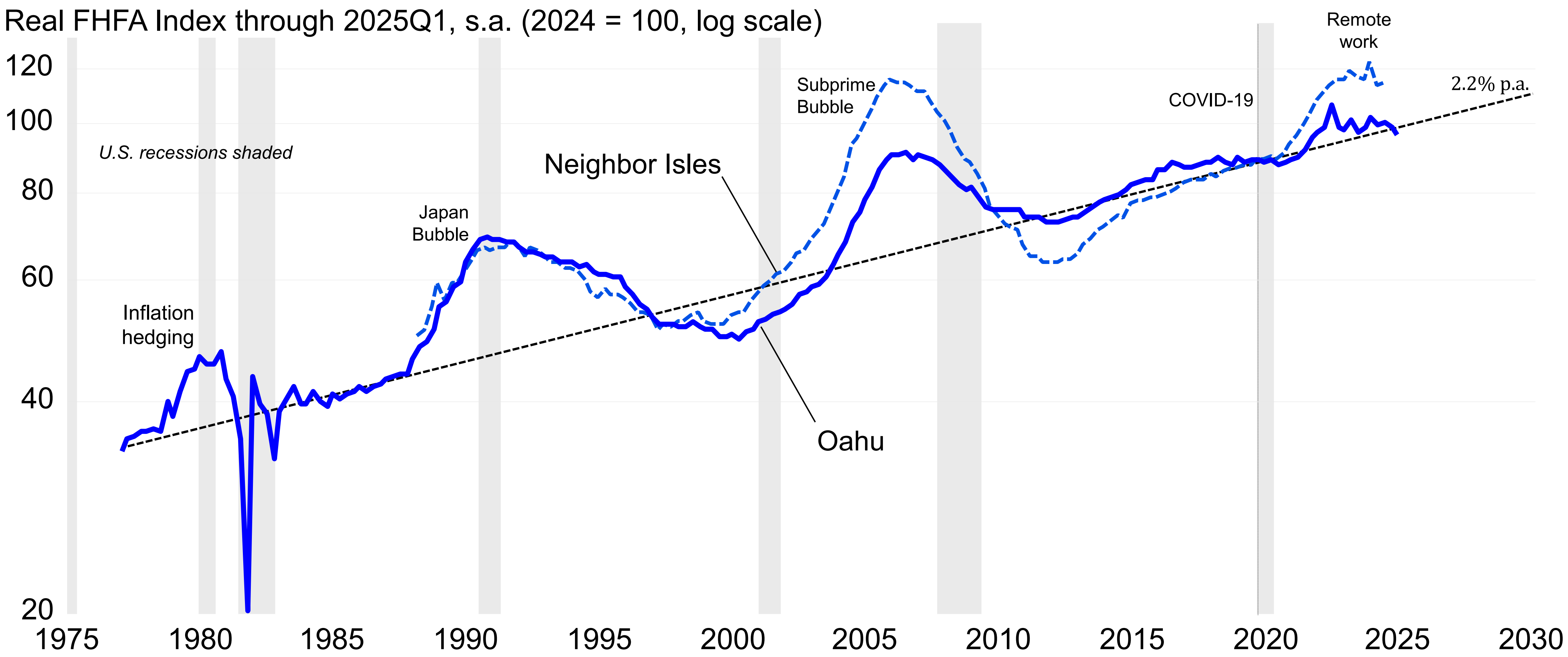
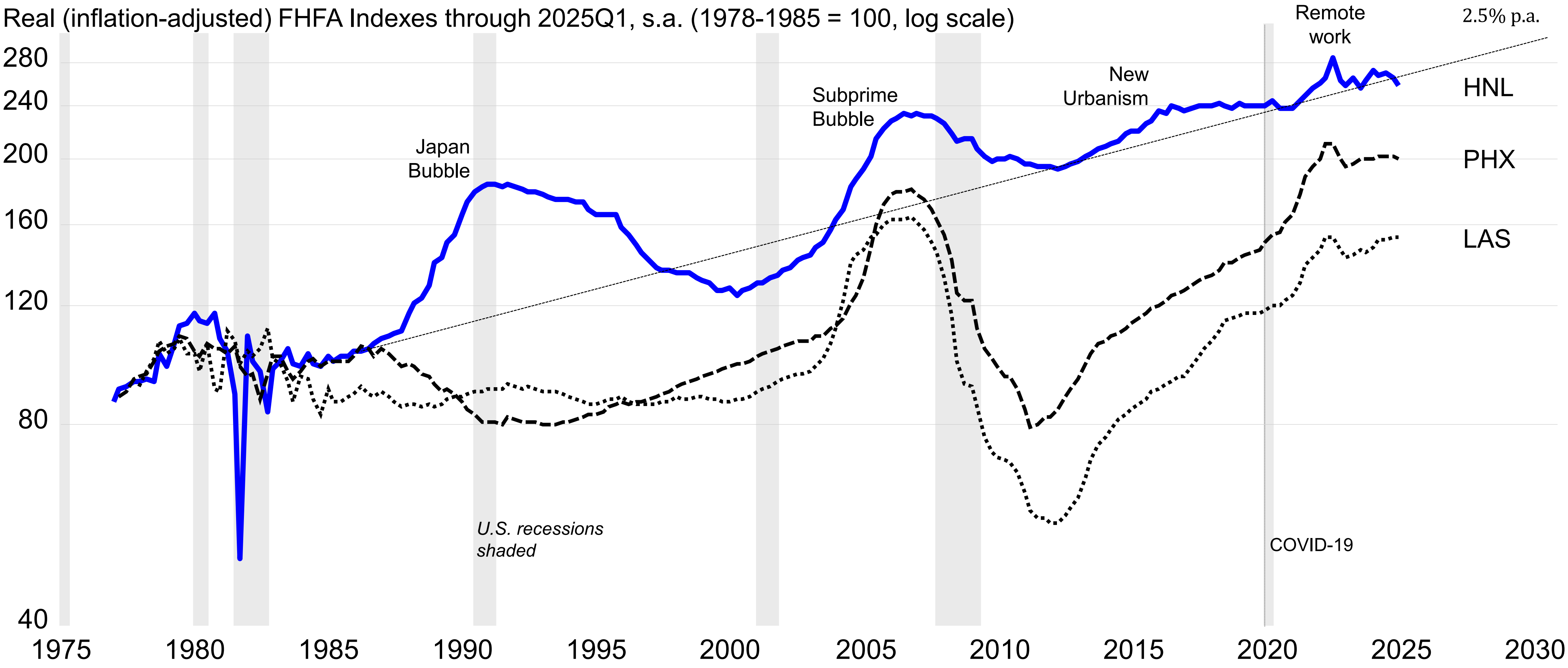
Real—inflation-adjusted—quarterly housing valuation impulses above, around LR appreciation rate (sales *and* mortgage collateral values)



Sources: Federal Housing Financial Administration (https://www.fhfa.gov/DataTools/Downloads/Documents/HPI/HPI_AT_metro.csv, https://www.fhfa.gov/data/hpi/datasets?tab=quarterly-data), U.S. Bureau of Labor Statistics (https://data.bls.gov/cgi-bin/surveymost?r9); re-basing, deflation using interpolated Honolulu CPI-U, regression of the stationary component (change in the natural log) on time, 1977Q1-2020Q1 by TZE

Regional real housing valuations adjusted for U.S. inflation, Honolulu trend since 1985 (pre-Japan Bubble) more stable? More rational



Sources: Federal Housing Financial Administration (https://www.fhfa.gov/data/hpi/datasets?tab=quarterly-data), U.S. Bureau of Labor Statistics (https://fred.stlouisfed.org/series/CPIAUCSL); index re-basing, deflation using U.S. CPI-U, regression of the stationary component (change in the natural log) of Honolulu real FHFA valuations on time, 1985Q4-2020Q4 by TZE

Demographic, workforce trends: post-pandemic *structural* changes have had housing market implications—permanent, not transitory

- Resident population *increased*, 2022-2024, after decreasing, 2018-2022
  - Rising international in-migration to Hawaii—those days are over
  - Falling domestic out-migration from Hawaii: post-pandemic *reversal*; vagabond and remote workers moving *to* Hawaii? New STR "working tourist" cohort?
  - Productivity growth (human capital) only option left if immigration door closed

- Post-pandemic drop in ratio of vacancy rate (job openings)(v) to unemployment rate (u), $\frac{v}{u}\downarrow$, removes cushion for future monetary contraction to tamp down inflation

- Remote and hybrid work stabilized around one-quarter of Hawaii workforce, post-pandemic:
  - Donut Effect on housing valuations (demand spatially radiated toward suburbs, exurbs)
  - Expression in higher suburban, exurban SF prices relative to urban core condo prices
  - CRE implication: workers who don't commute don't stop at gym, mall on the drive home

See also: Augustus Kmetz, John Mondragon, and Johannes Wieland (September 26, 2022), "Remote Work and Housing Demand," *FRBSF Economic Letter* 2022-26 (https://www.frbsf.org/wp-content/uploads/el2022-26.pdf).

Other more recent *quantitative* Oahu housing market trends

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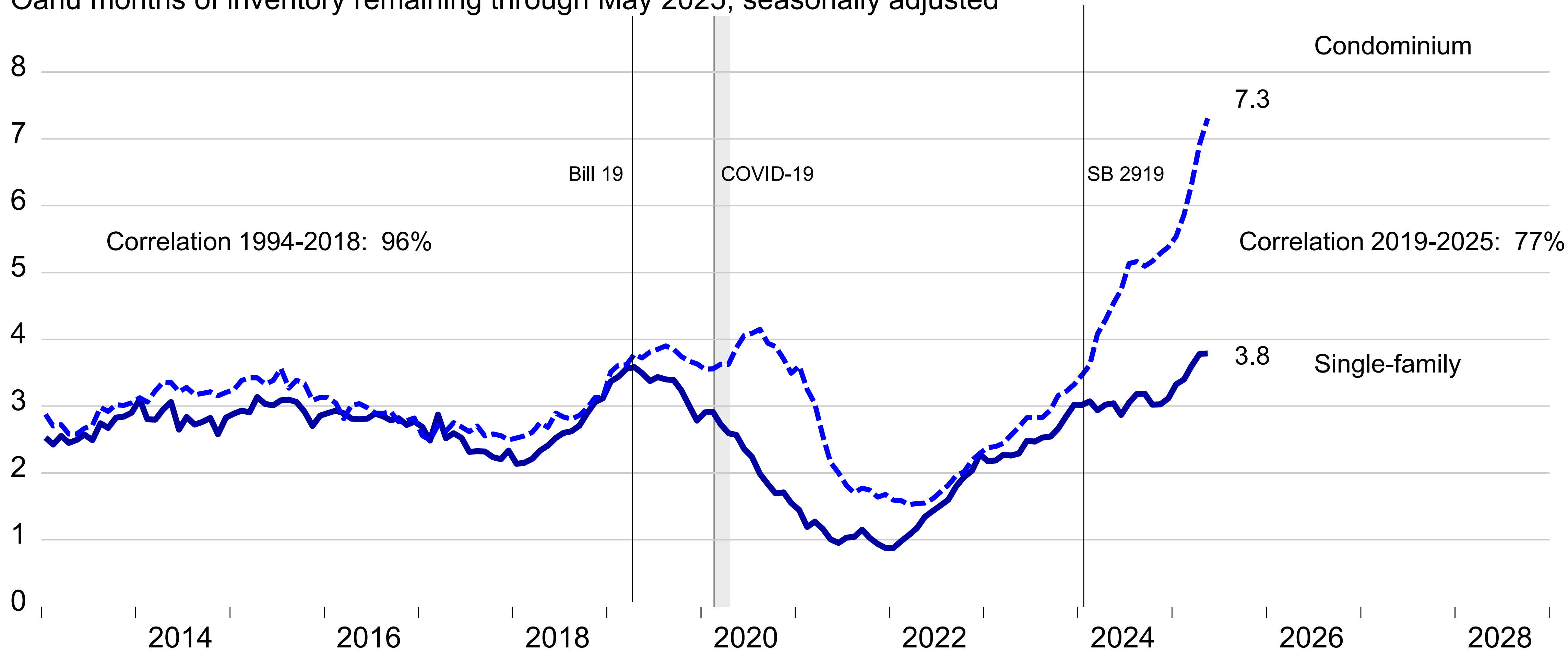
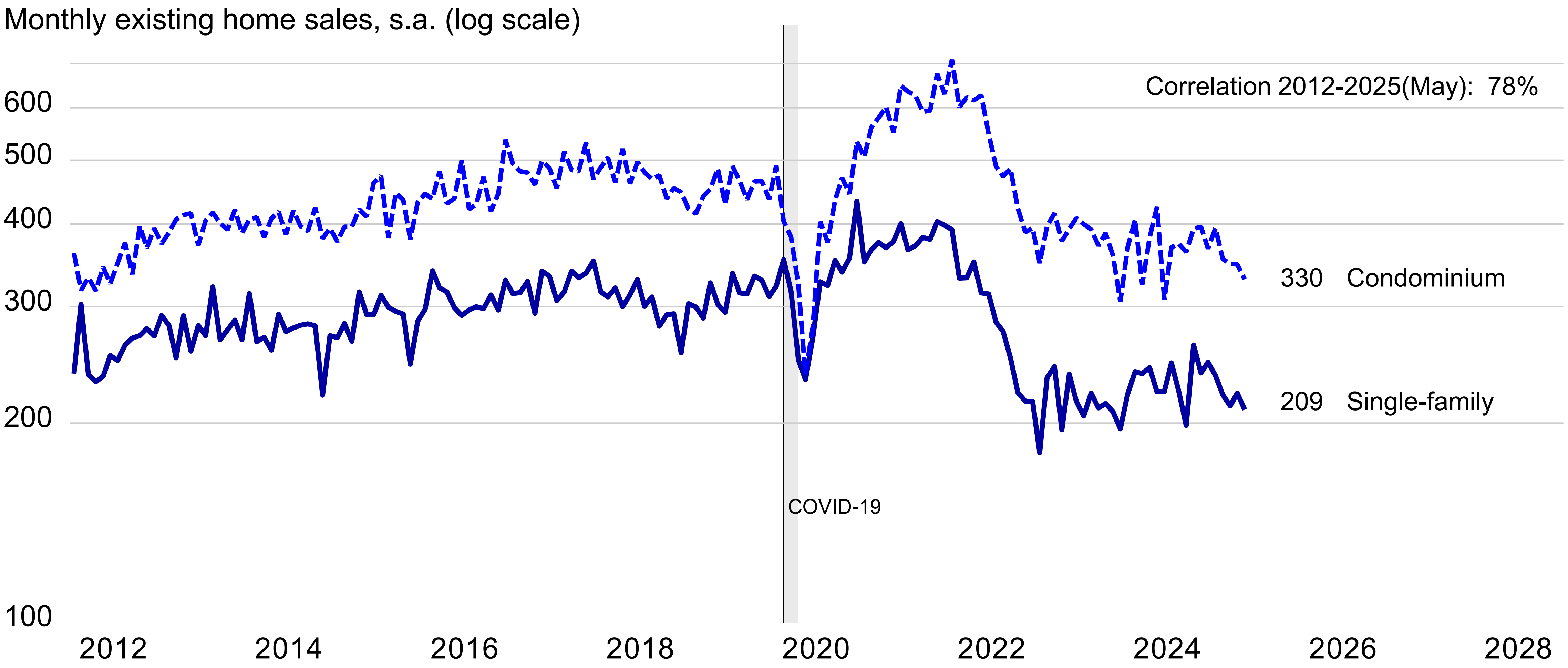
Inventory pile-up in existing condominium listings accelerating as STR political stigma spreads, maintenance and insurance costs bite

Oahu months of inventory remaining through May 2025, seasonally adjusted



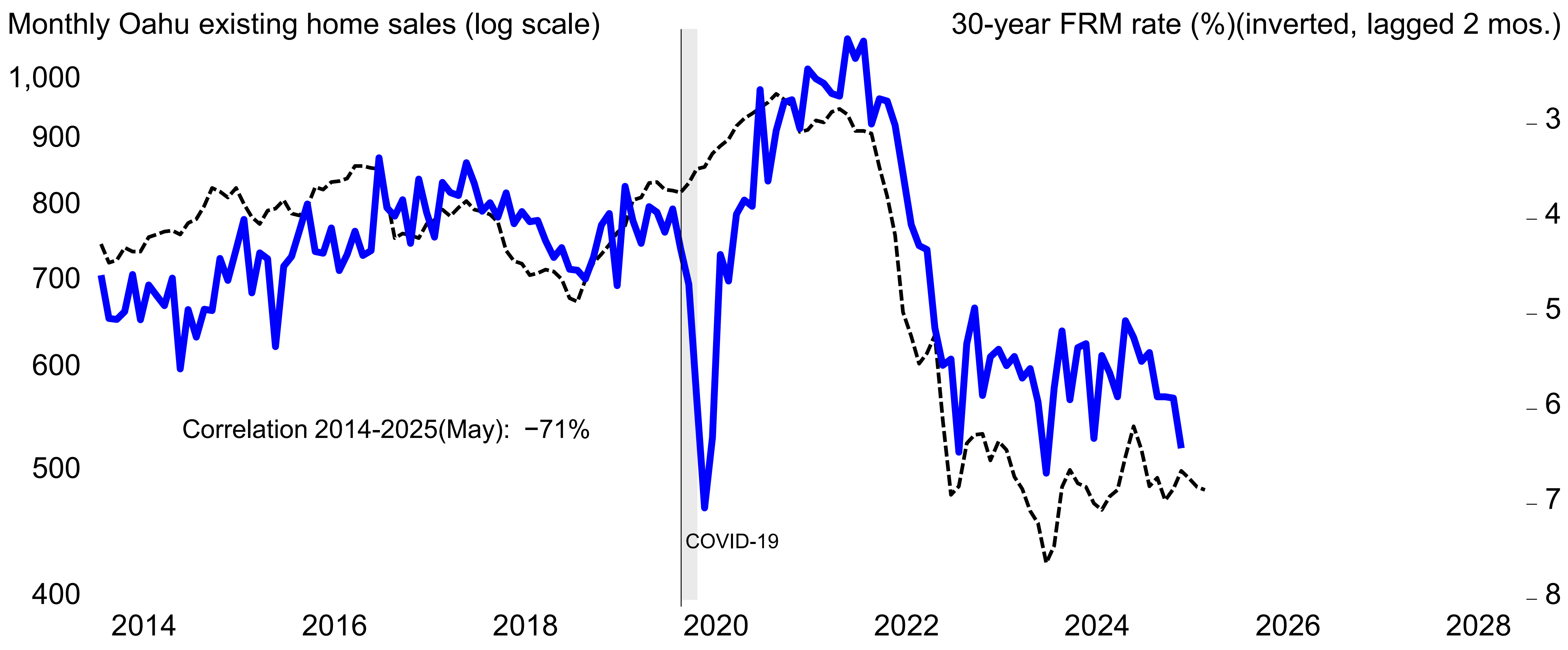
Sources: Honolulu Board of Realtors, seasonally adjusted using Census X-13 ARIMA filter through May 2025 by TZ Economics.

Inventory issues for Oahu do not seem primarily to be rooted in mortgage interest rate fluctuations: sales co-movement with SF



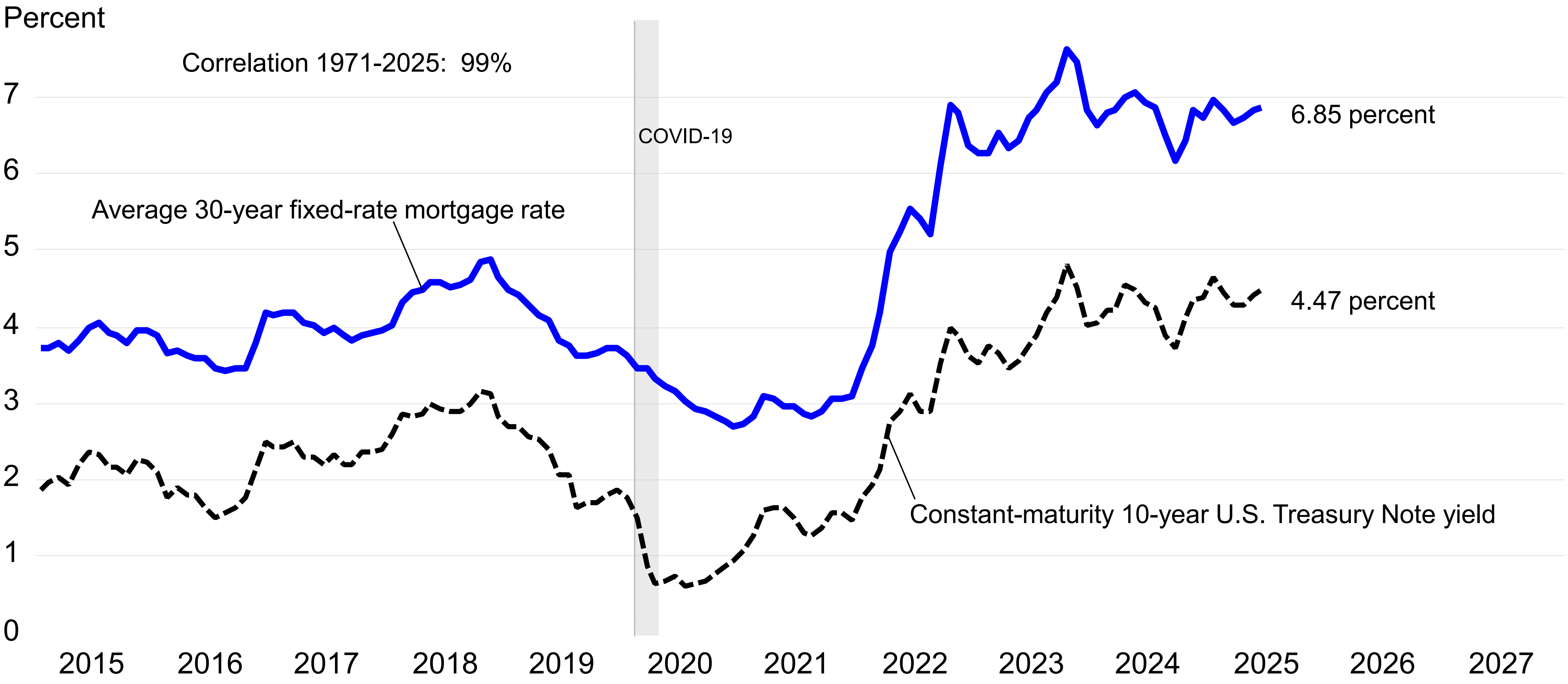
Sources: Honolulu Board of Realtors, seasonally adjusted using Census X-13 ARIMA filter through May 2025 by TZ Economics.

Inverse movement of Oahu existing home sales and 30-year fixed rate mortgage interest rates has been strong, other factors explain condos



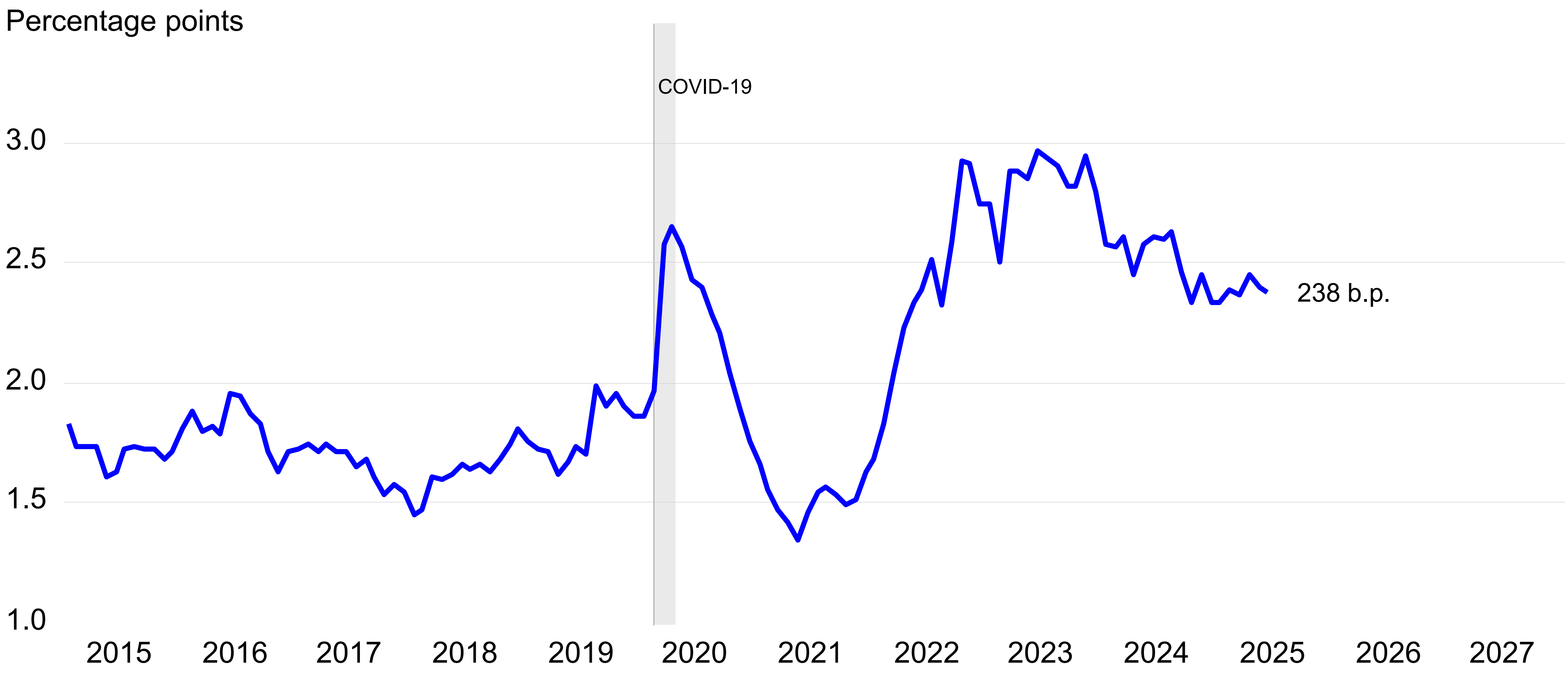
Sources: Honolulu Board of Realtors, seasonally adjusted using Census X-13 ARIMA filter through May 2025 by TZ Economics, and Freddie Mac, retrieved from FRED, Federal Reserve Bank of St. Louis; (https://fred.stlouisfed.org/series/MORTGAGE30US).

Longer-term U.S. Treasury yields resisted the path downward last year and this year got blown up by Trump 2.0; mortgages follow



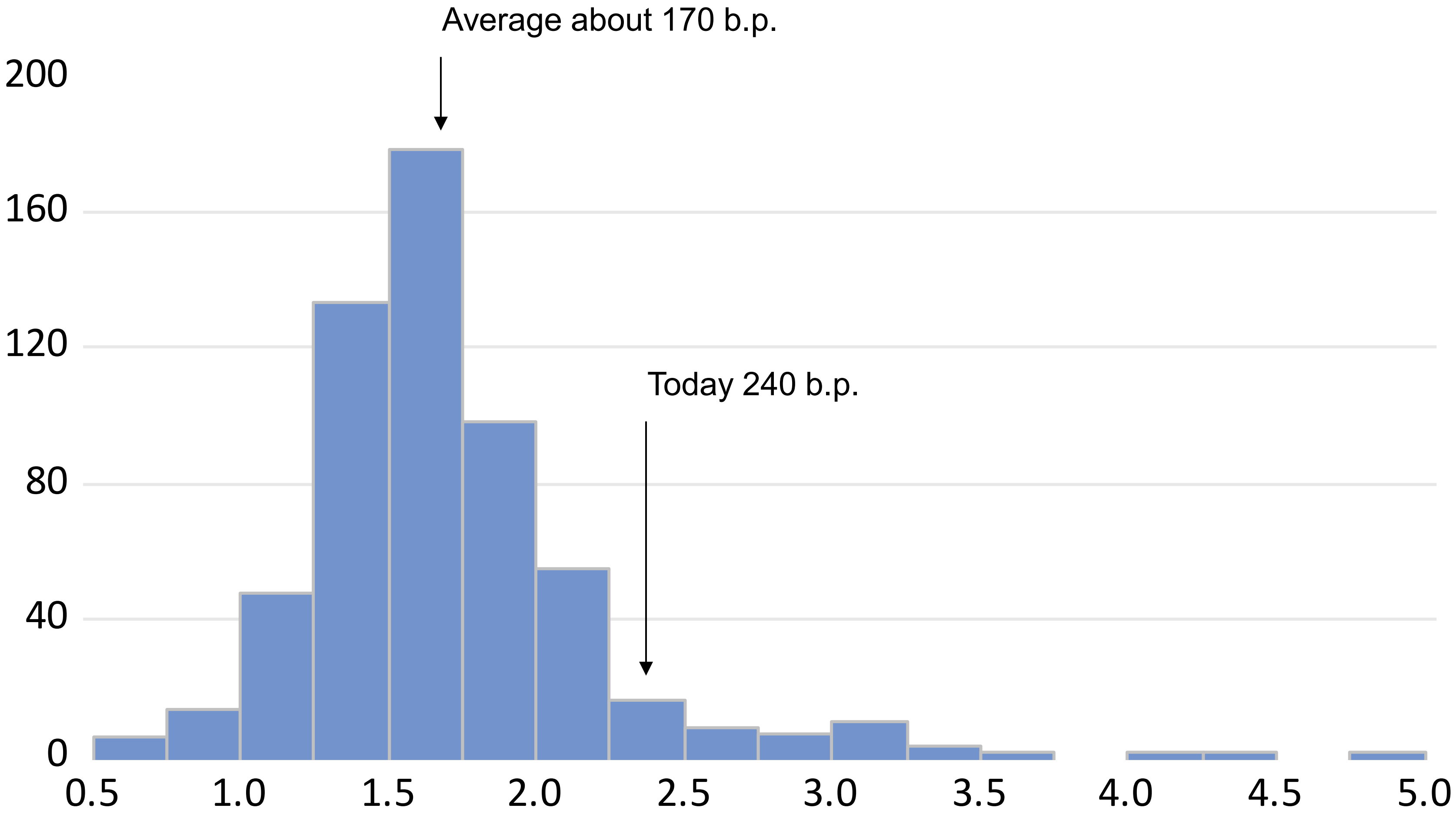
Sources: Freddie Mac, retrieved from FRED, Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/MORTGAGE30US), Federal Reserve Board (https://www.federalreserve.gov/releases/h15/).

Mortgage premium has persisted at around 240 basis points, into mid-2020s, versus historical average closer to 170 basis points



Sources: Freddie Mac, retrieved from FRED, Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/MORTGAGE30US), Federal Reserve Board (https://www.federalreserve.gov/releases/h15/). Mean spread from Freddie Mac average mortgage rate to 10-year T-Note yield, 1971-2019, was 169.33 basis points, median spread was 162.75 basis points.

Pre-pandemic mortgage premium distribution (10-year T-Note yields) has averaged about 1.7 percent



Series: Mortgage premium
Sample 1971-2019
Observations 585

Mean	1.693348
Median	1.627500
Maximum	4.855000
Minimum	0.532500
Std. Dev.	0.486345
Skewness	1.708633
Kurtosis	9.572355
Jarque-Bera	1337.543
Probability	0.000000

Sources: Freddie Mac, retrieved from FRED, Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/MORTGAGE30US), Federal Reserve Board (https://www.federalreserve.gov/releases/h15/).

Homebuilding trends

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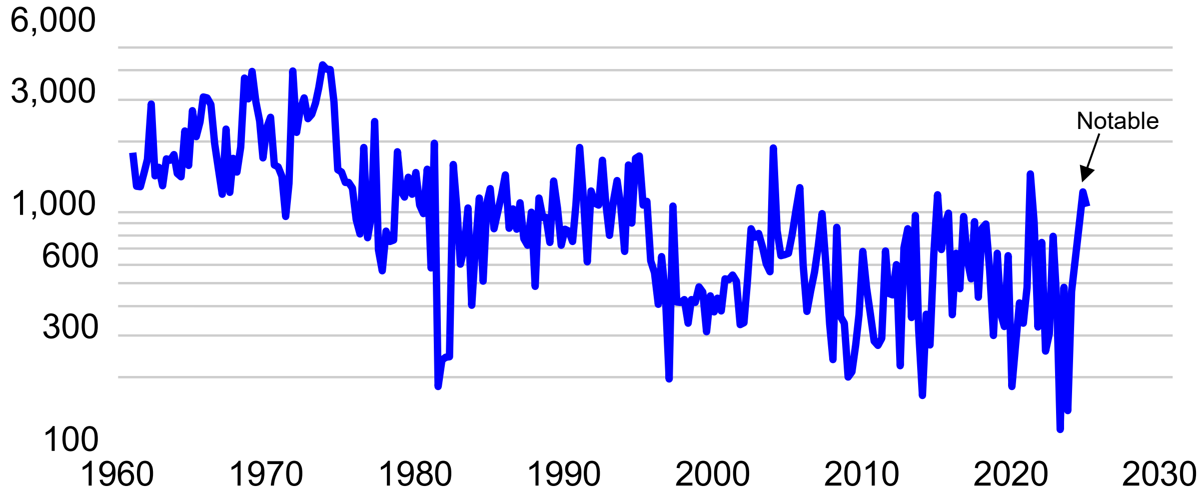
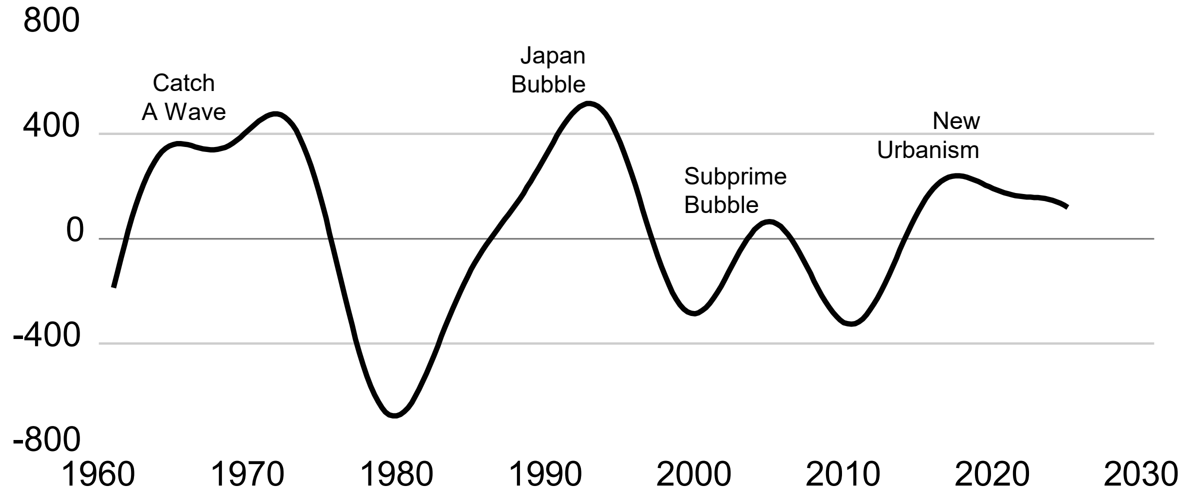
Decomposition of annual Oahu new residential units authorized by building permit, 1961-2025

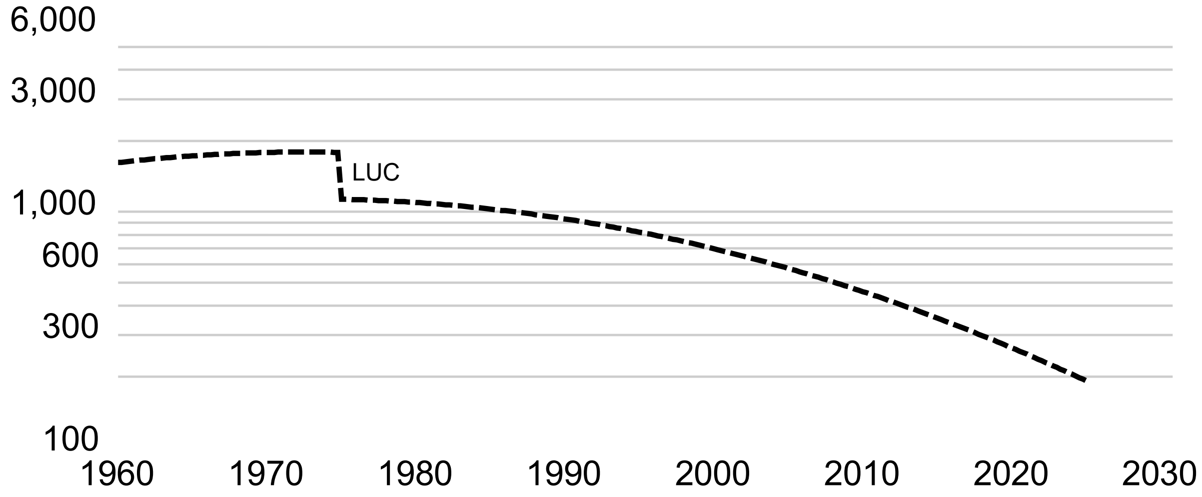
Oahu quarterly new housing units authorized by building permit



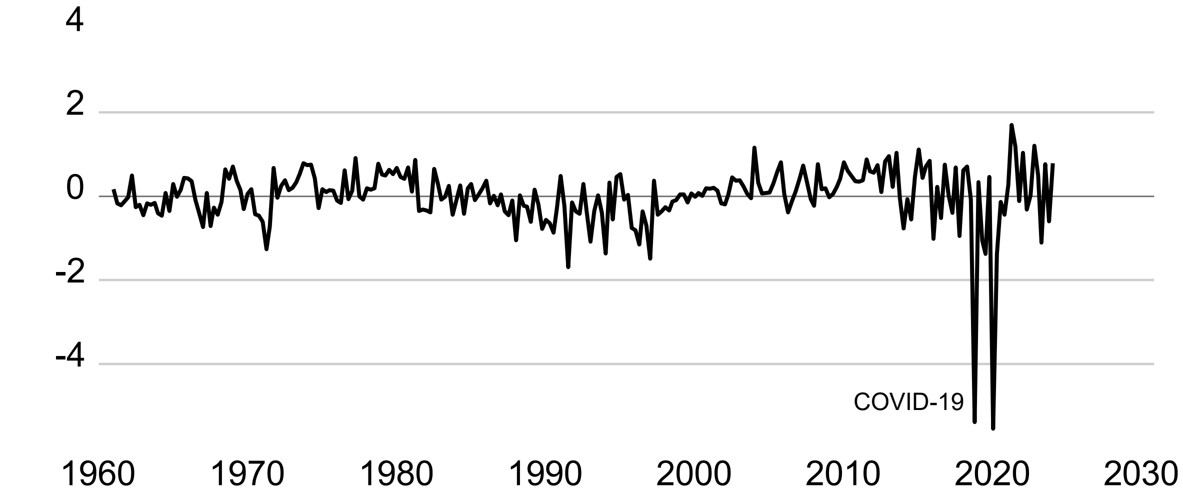
Long-term super-cycle component



Long-term trend component and 1975 break

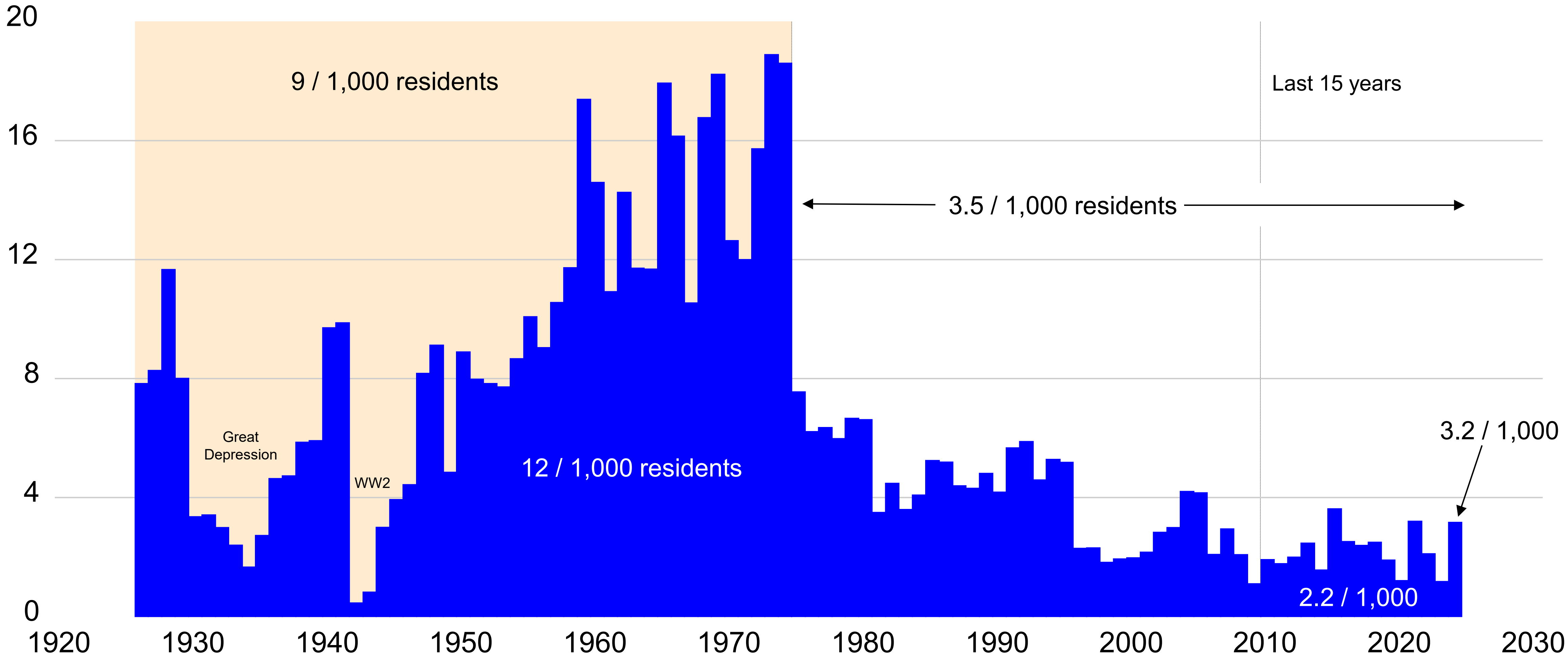


Residual noise component (log points)



Sources: County building department, Bank of Hawaii, Hawaii DBEDT (http://dbedt.hawaii.gov/economic/qser/selected-county-tables/); decomposition using Christiano-Fitzgerald asymmetric band-pass frequency filter with short:long cycle periods of 40:120 quarters, and trend extraction with a log-linear regression with exogenous break on the non-cyclical component, yielding a measure of noise in the residual, by TZ Economics.

Oahu new homebuilding since 1920s: half-century with up to 3X as much homebuilding as next half-century, 6X post-war *vs.* 2010-20s



Sources: County building department, Bank of Hawaii, Hawaii DBEDT (http://dbedt.hawaii.gov/economic/qser/selected-county-tables/ and https://dbedt.hawaii.gov/economic/datawarehouse/); annual data through 1926-2024.

Inflation expectations and interest rates

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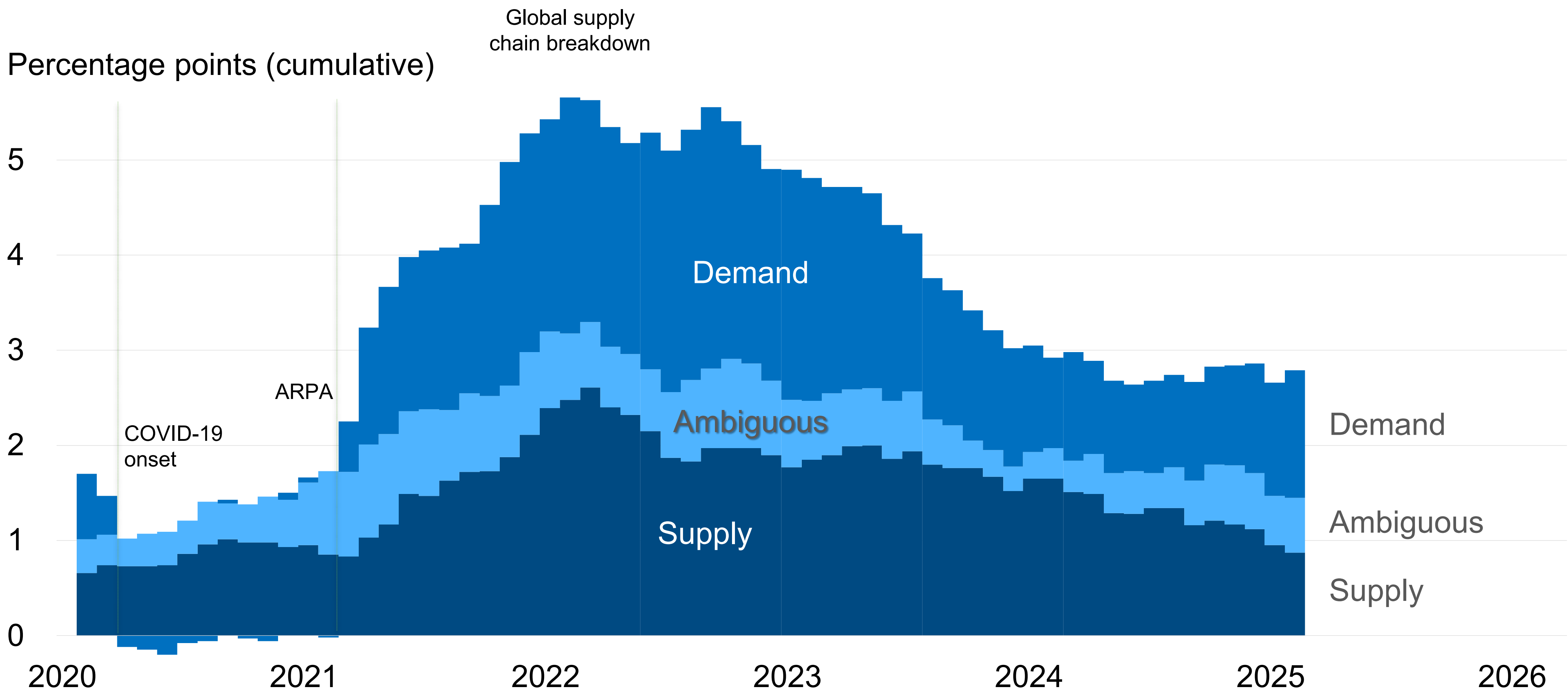
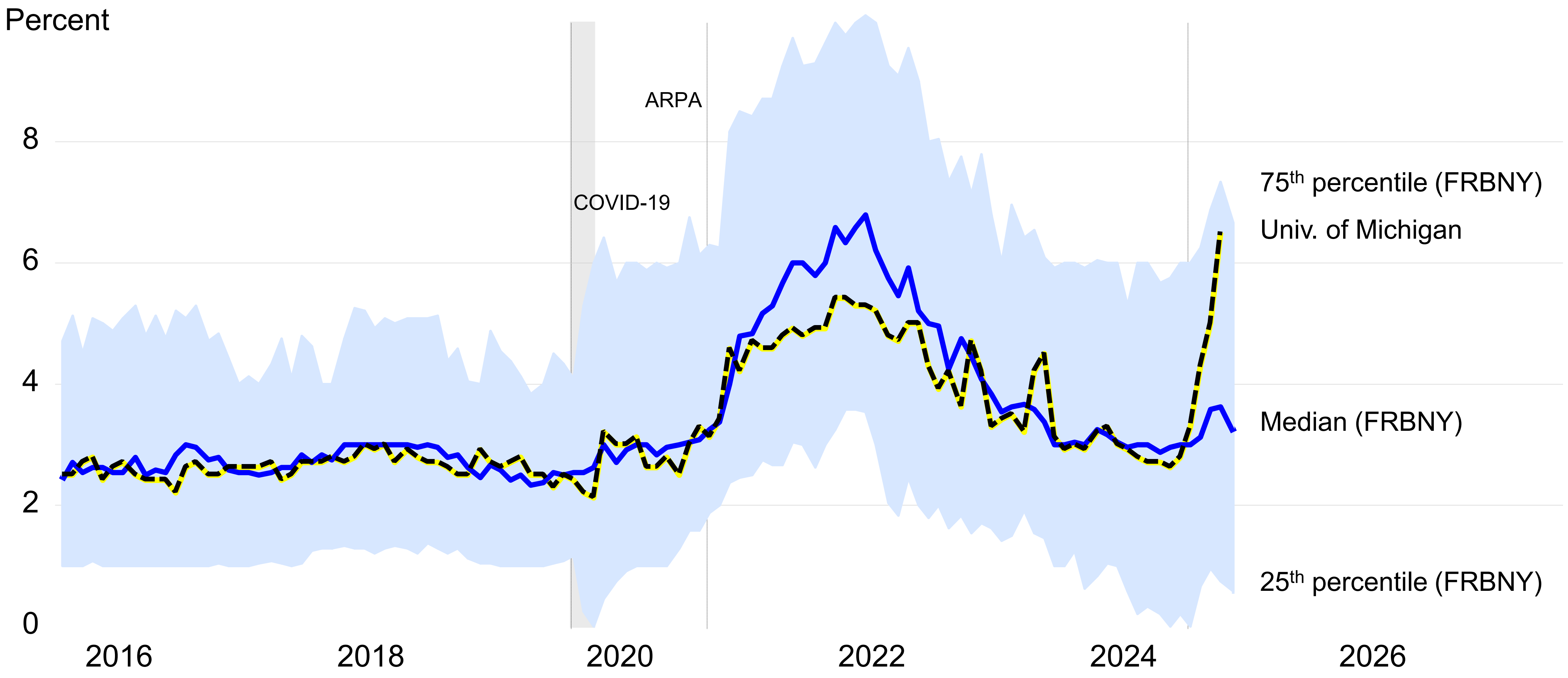
FRBSF supply- and demand-driven PCE inflation: post-pandemic supply shock contribution provides guidance for 2025 tariff effects



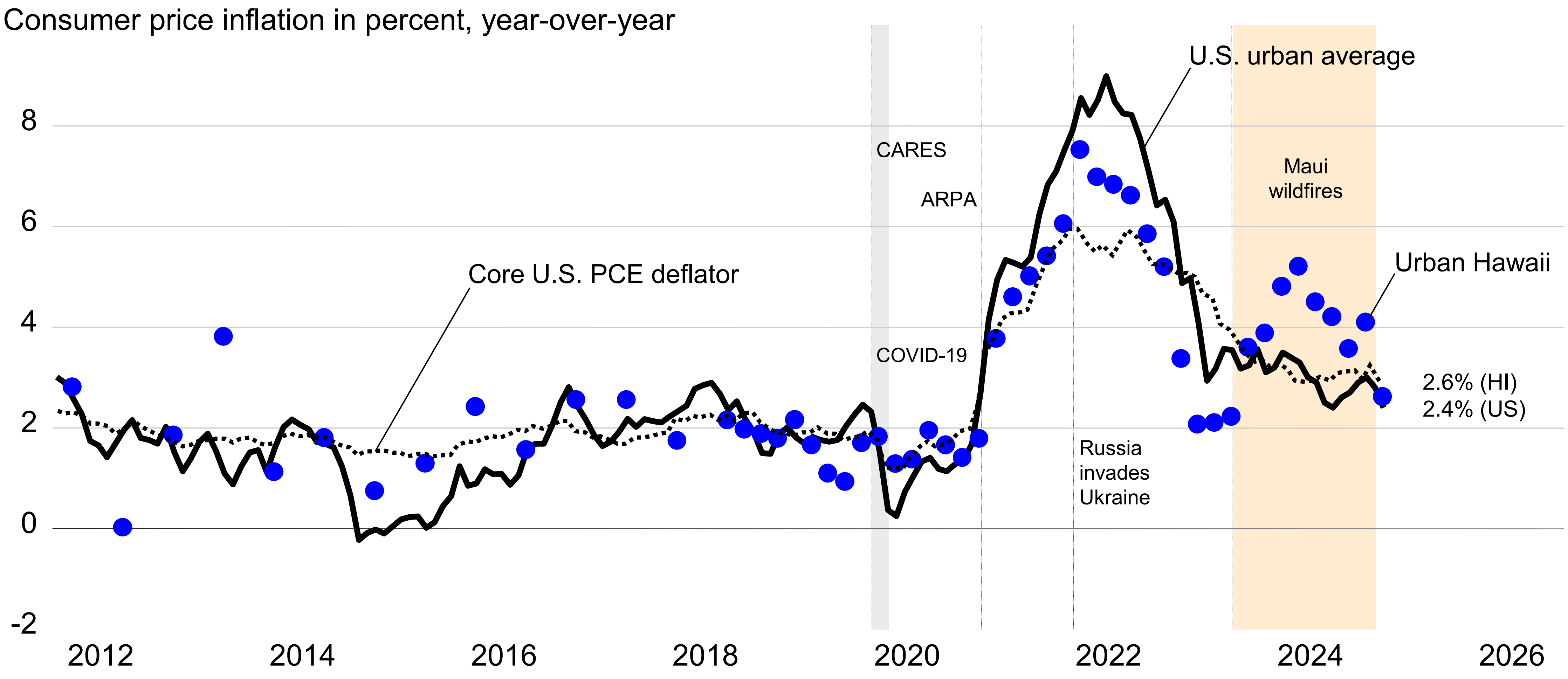
Sources: Federal Reserve Bank of San Francisco (https://www.frbsf.org/research-and-insights/data-and-indicators/supply-and-demand-driven-pce-inflation/), monthly data through February 2025; see Adam Hale Shapiro (June 21, 2022), "How Much Do Supply and Demand Drive Inflation?" *FRBSF Economic Letter* 2022-15.

FRBNY survey of consumer inflation expectations and University of Michigan survey of consumers' inflation expectation©: *uncertainty*



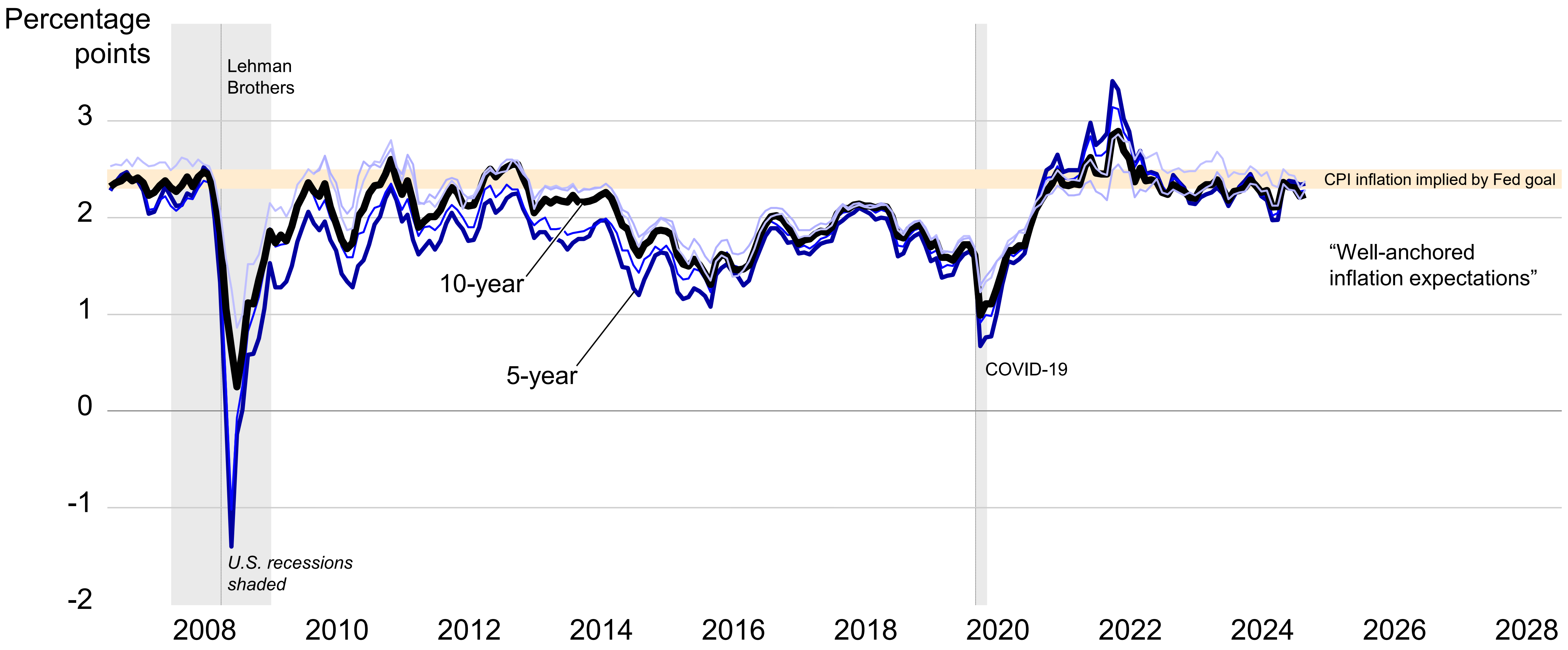
Source: University of Michigan, Federal Reserve Bank of New York, retrieved from FRED, Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/MICH, monthly through April 2025, and https://www.newyorkfed.org/microeconomics/databank.html, and https://www.newyorkfed.org/medialibrary/Interactives/sce/sce/downloads/data/FRBNY-SCE-Data.xlsx?sc_lang=en, monthly through May 2025).

Urban Hawaii CPI inflation eased after post-wildfire housing cost surge (FEMA rent); settling to rate consistent with FOMC PCE goal



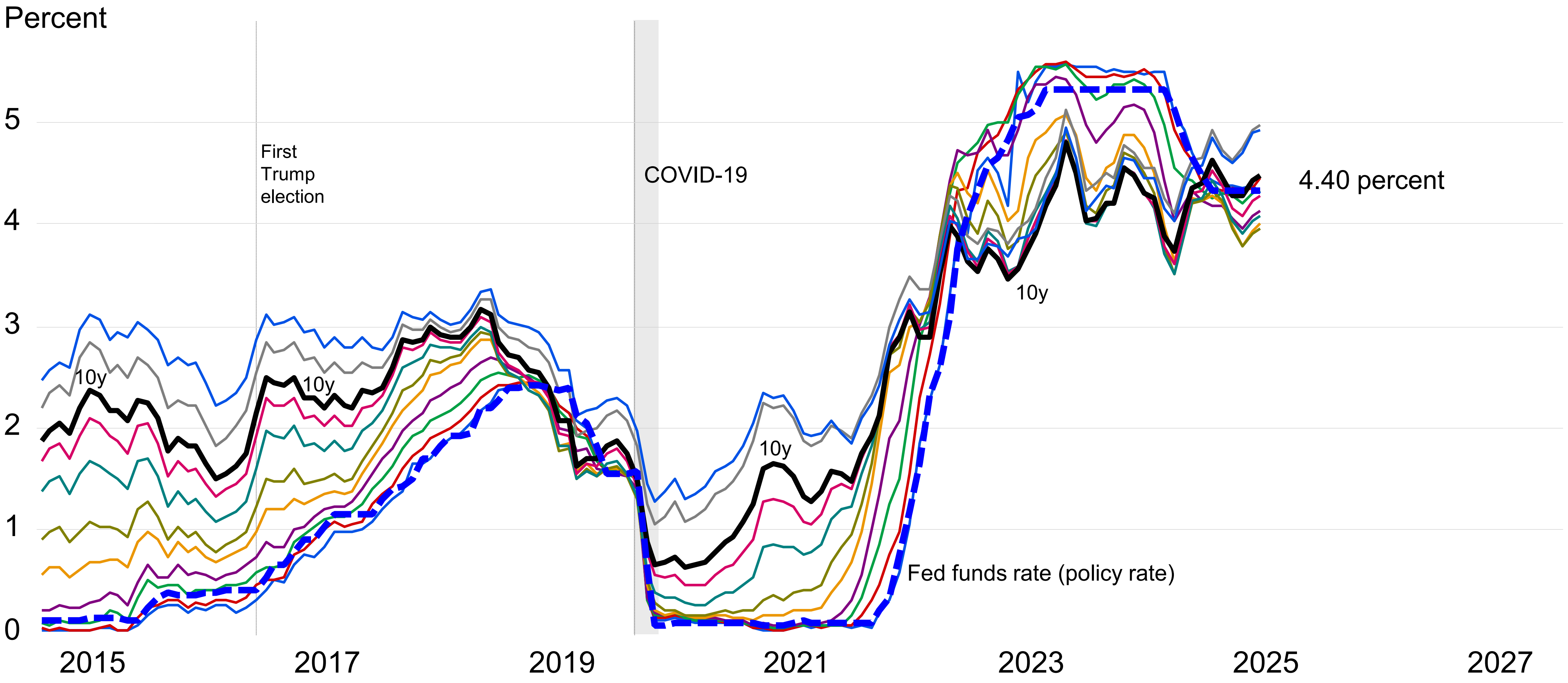
Sources: U.S. Bureau of Labor Statistics (https://data.bls.gov/cgi-bin/surveymost?r9), U.S. Bureau of Economic Analysis, Personal Consumption Expenditures Excluding Food and Energy (Chain-Type Price Index) [PCEPILFE], retrieved from FRED, Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/PCEPILFE), data through March 2025.

Term structure of expected inflation implied by nominal U.S. Treasury minus real (TIPS) yields stable *longer-run* indication of expectations



Sources: Board of Governors of the Federal Reserve System (https://www.federalreserve.gov/releases/h15); monthly data through March 2025.

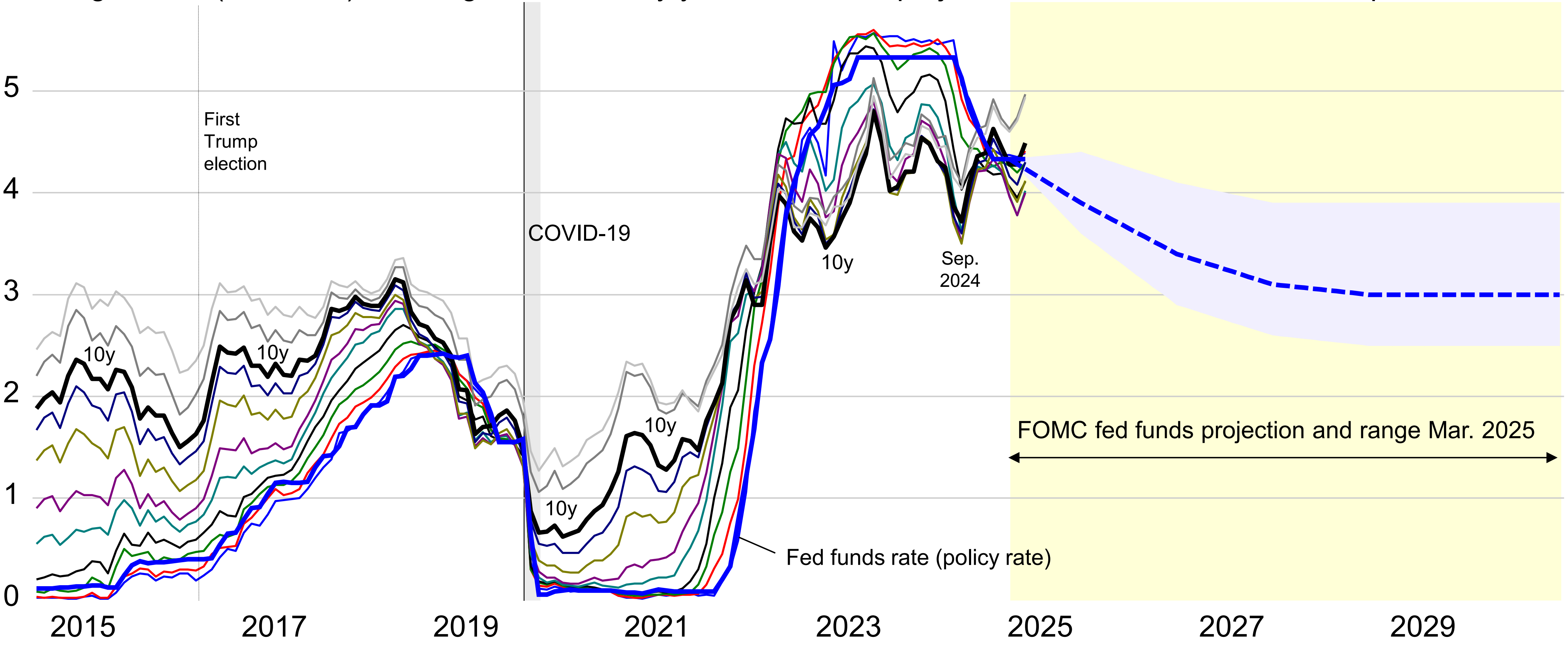
Term structure of U.S. Treasury yields and overnight fed funds rate (Federal Reserve policy rate): FOMC paused, higher uncertainty



Source: Federal Reserve Board (June 2025) (https://www.federalreserve.gov/releases/h15/).

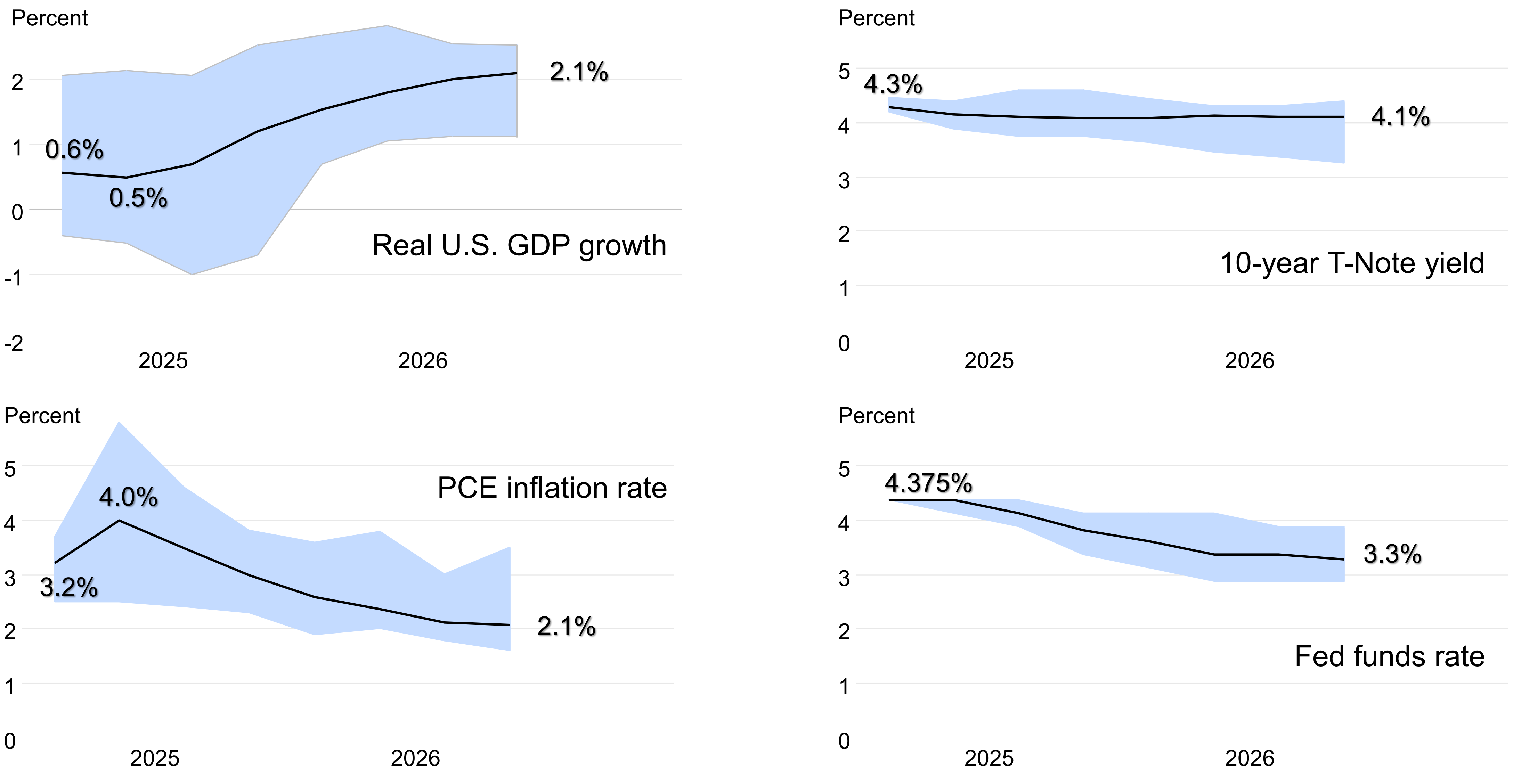
Term structure of U.S. Treasury yields and overnight fed funds rate (Federal Reserve policy rate): FOMC paused, higher uncertainty

Overnight rates (fed funds) and long-term Treasury yields, and FRB projections for the fed funds rate, in percent



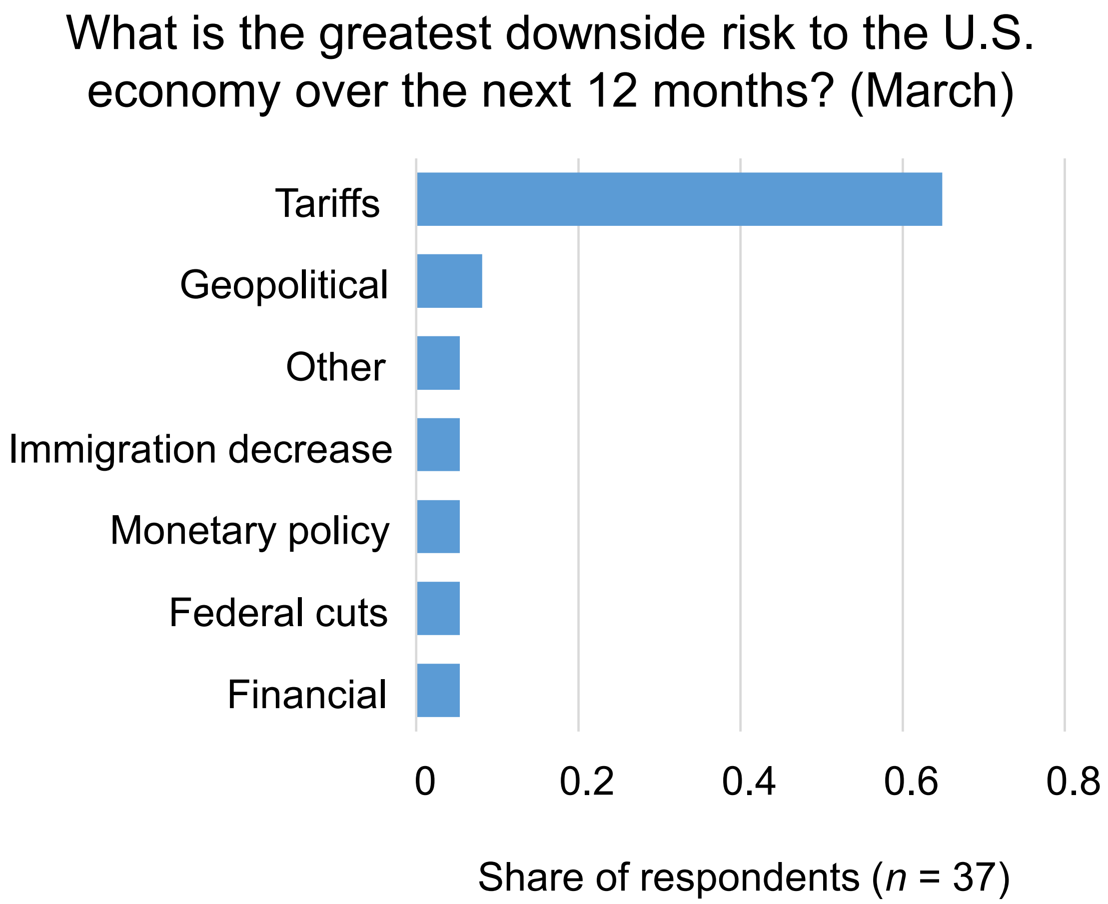
Source: Federal Reserve Board (March 2025) (https://www.federalreserve.gov/monetarypolicy/fomcprojtabl20250319.htm and https://www.federalreserve.gov/releases/h15/).

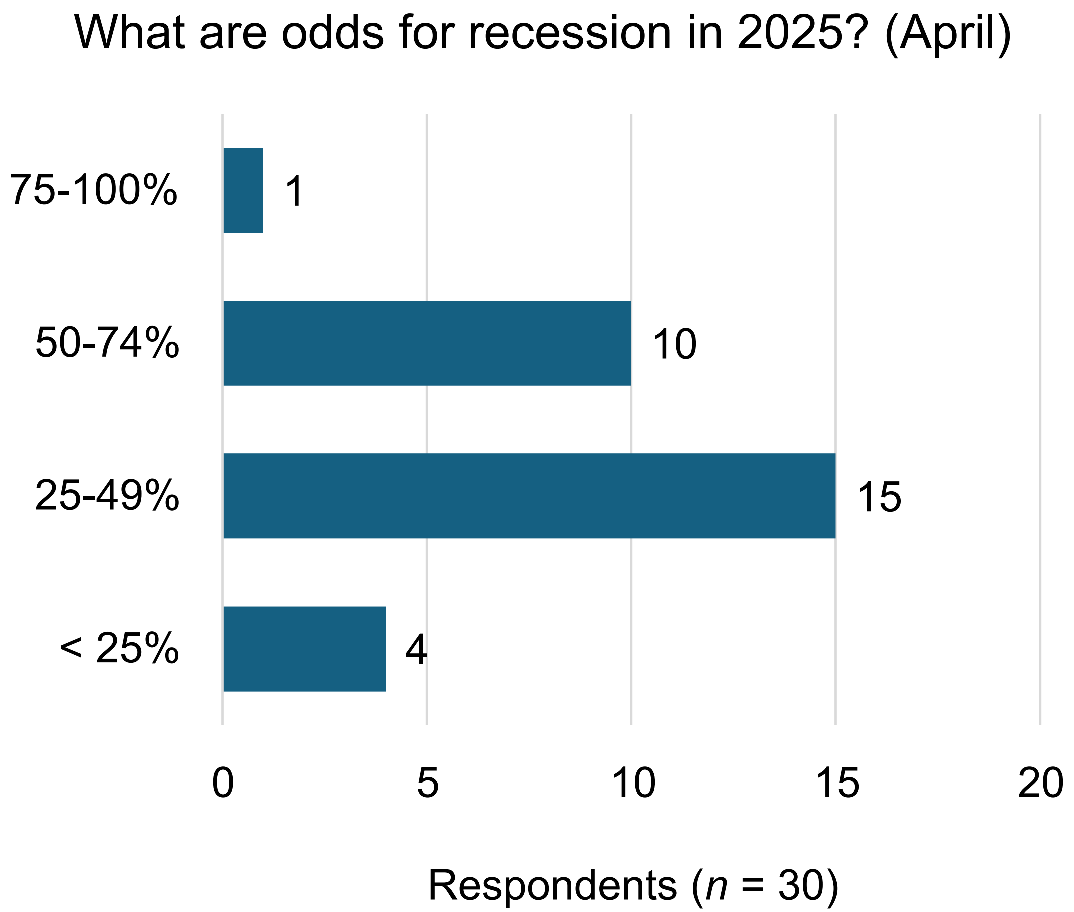
NABE April 2025 flash economic outlook survey results (± top and bottom 5 medians)



Source: National Association for Business Economics (April 14, 2024) *NABE Outlook Survey: NABE Panel Downgrades Outlook Amid Uncertainty of Tariff Impacts* (https://nabe.com/NABE/Surveys/Outlook_Surveys/April_2025_Outlook_Survey_Summary.aspx). Initial survey March 18-25, 2025, flash survey results shown here: April 7-9, 2025.

NABE Outlook Survey results on downside risks (March survey) and recession odds (April flash survey)





Source: National Association for Business Economics (April 14, 2024) *NABE Outlook Survey: NABE Panel Downgrades Outlook Amid Uncertainty of Tariff Impacts* (https://nabe.com/NABE/Surveys/Outlook_Surveys/April_2025_Outlook_Survey_Summary.aspx). Initial survey March 18-25, 2025, flash survey results shown here: April 7-9, 2025.

FOMC policy decision May 7, 2025: "well positioned to wait for greater clarity before considering any adjustments to our policy stance."

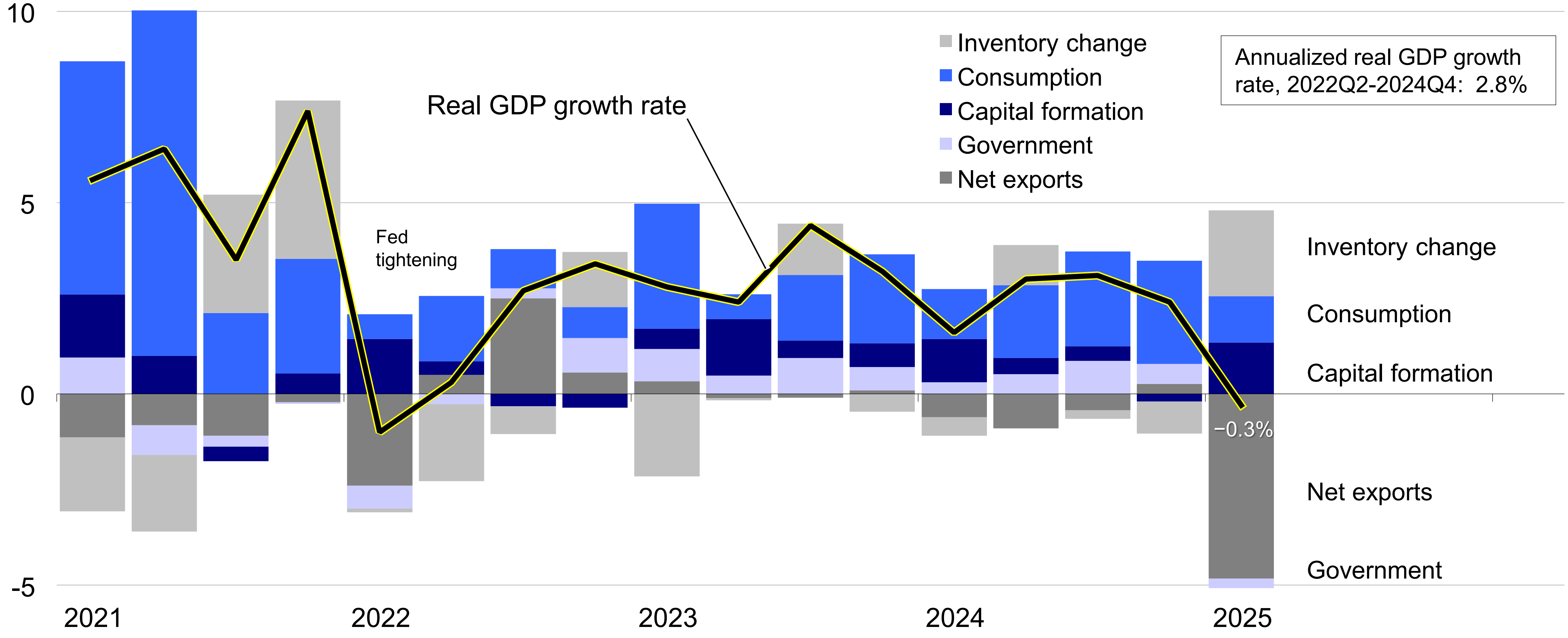
- Fed funds target range maintained at 4.25-4.50 percent
- Continue at reduced (from 2024) pace of FRB balance sheet runoff:
  - Treasuries' monthly redemption cap at $5b (down from $25b)
  - Agencies and MBS maintained at $35b
  - Ongoing five-year review of policy framework, focused on inflation dynamics and implications for monetary policy strategy (research conference this month)

"…*If the large increases in tariffs that have been announced are sustained, they are likely to generate a rise in inflation, a slowdown in economic growth, and an increase in unemployment. … Our obligation is to keep longer-term inflation expectations well anchored and to prevent a one-time increase in the price level from becoming an ongoing inflation problem. … We may find ourselves in the challenging scenario in which our dual-mandate goals* [maximum employment and stable prices] *are in tension. If that were to occur, we would consider how far the economy is from each goal, and the potentially different time horizons over which those respective gaps would be anticipated to close. For the time being, we are well positioned to wait for greater clarity.*"

Source: Federal Reserve Board (May 7, 2025) (https://www.federalreserve.gov/newsevents/pressreleases/monetary20250507a.htm and https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20250507.pdf).

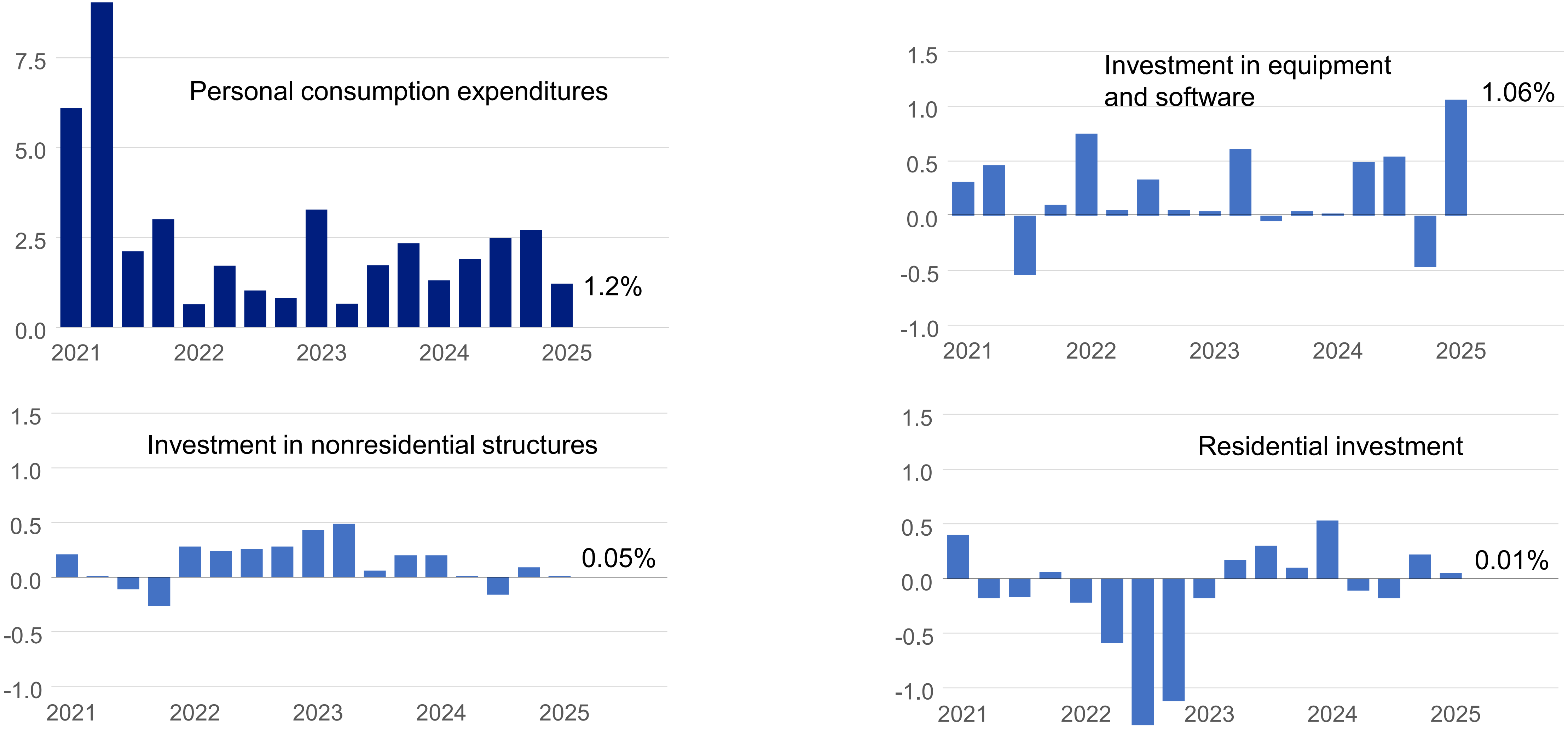
Recent news: the U.S. recession probably started—2025Q1 advance estimates of real GDP growth negative (maybe started in February)

Contributions to quarterly real U.S. GDP growth in percent, seasonally adjusted at annual rates



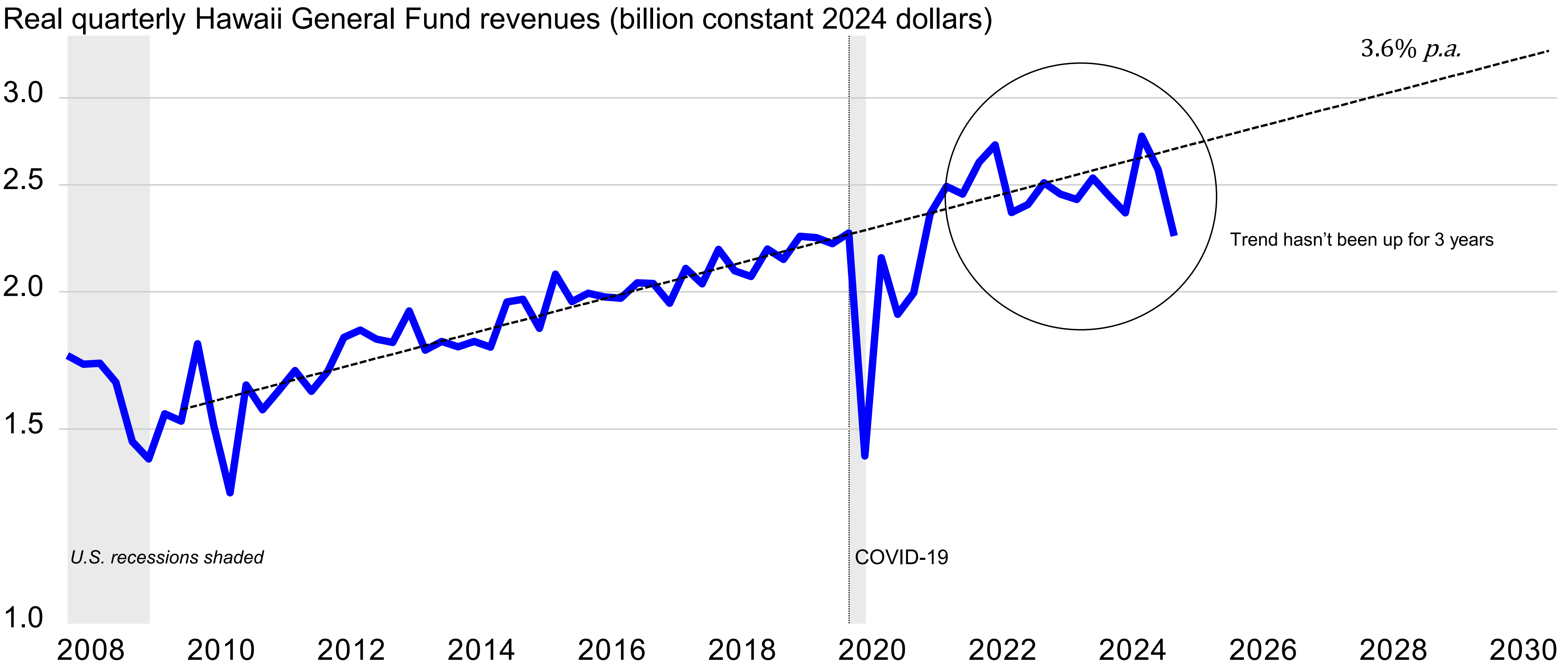
Source: U.S. Bureau of Economic Analysis (https://www.bea.gov/itable/national-gdp-and-personal-income). Actual U.S. recession dates are determined by the National Bureau of Economic Research, unless DOGE has eliminated its federal funding (https://www.nber.org/research/business-cycle-dating).

Quarterly contributions to U.S. real GDP growth in in 2025Q1 (%): consumption slowed, equipment + software investment beat tariffs



Source: U.S. Bureau of Economic Analysis (https://www.bea.gov/itable/national-gdp-and-personal-income).

Real General Fund revenue trends suggest Hawaii not as resilient as believed, more vulnerable to tourism fade, in denial since 2021



Source: Hawaii Dept. of Taxation, Hawaii DBEDT (https://files.hawaii.gov/dbedt/economic/data_reports/mei/2024-08-state.xls), U.S. BLS (https://data.bls.gov/toppicks?survey=r9), quarterly data through 2025Q1, seasonal adjustment, deflation with quarterly interpolated Urban Hawaii CPI-U, and pre-pandemic stationary trend regression by TZE.

Macroeconomic overview: how things changed since January

- BEFORE: Soft Landing transition to disinflation at full employment was underway entering 2025
  - Monetary policy normalization with 2 percent PCE inflation goal (*c.* 2.5 percent CPI inflation)
  - Subsidence to “neutral” risk-free overnight interest rate expectation around 3 percent (2026)
  - Federal Reserve balance sheet normalization to be re-examined in LR strategy review (2025)
  - Ongoing explicit forward guidance, well-anchored inflation expectations

- AFTER: U.S. federal fiscal policy chaos and Sudden Stop
  - Constitutional crisis: federal law (*e.g.* appropriations) not “faithfully being executed” (Article II), ignoring federal courts (Article III), with capitulation of congressional oversight (Article I)
  - DOGE data-mining: undermine bureaucracy, disarticulate governance, loot/privatize
  - Ukrainian, European betrayal, Russian appeasement; neo-imperialism (Greenland, Canada)
  - Unilateral trade war (not “Liberation Day” but “Obliviation Day”): neo-mercantilist revival (political-economic hegemonism) leading to supply chain/logistics disruption
  - Immigration: *there is no due process*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Appendix: failed resilience in weekly Hawaii passenger arrivals

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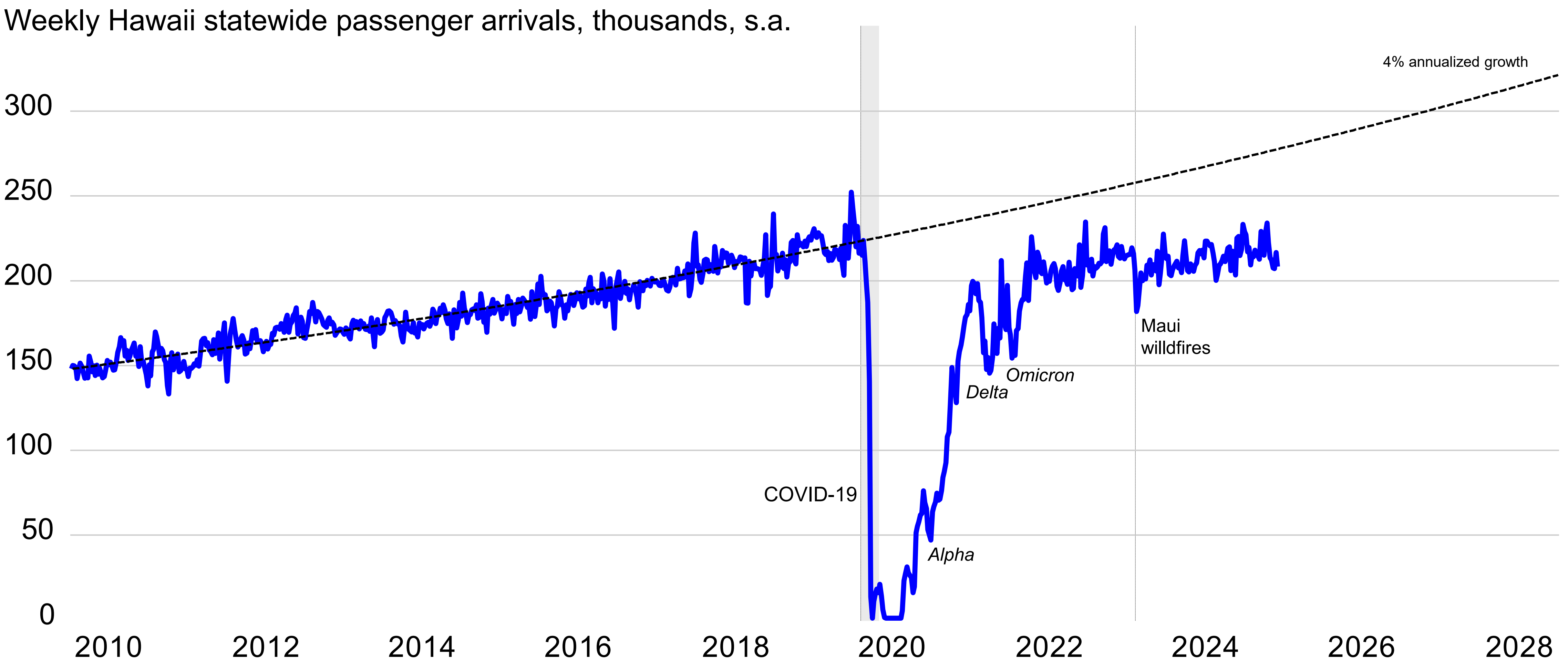
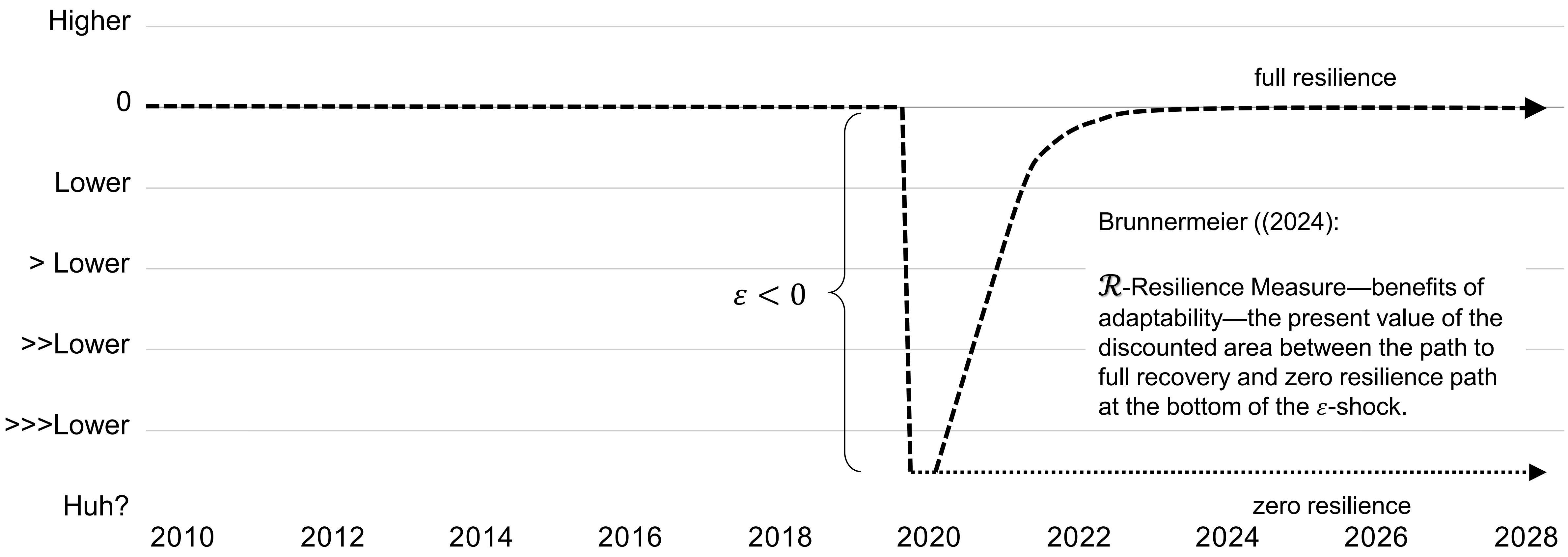
Post-pandemic Hawaii passenger arrivals (s.a.): no 2020s return to pre-pandemic trajectory; failure to return to path is resilience shortfall



Source: Hawaii DBEDT (https://dbedt.hawaii.gov/visitor/daily-passenger-counts/), daily data aggregated to weekly frequencies through June 11, 2025; seasonally-adjusted using an STL decomposition. Pre-pandemic trend illustrated is estimated 2010-February 14, 2020, and projected to 2028.

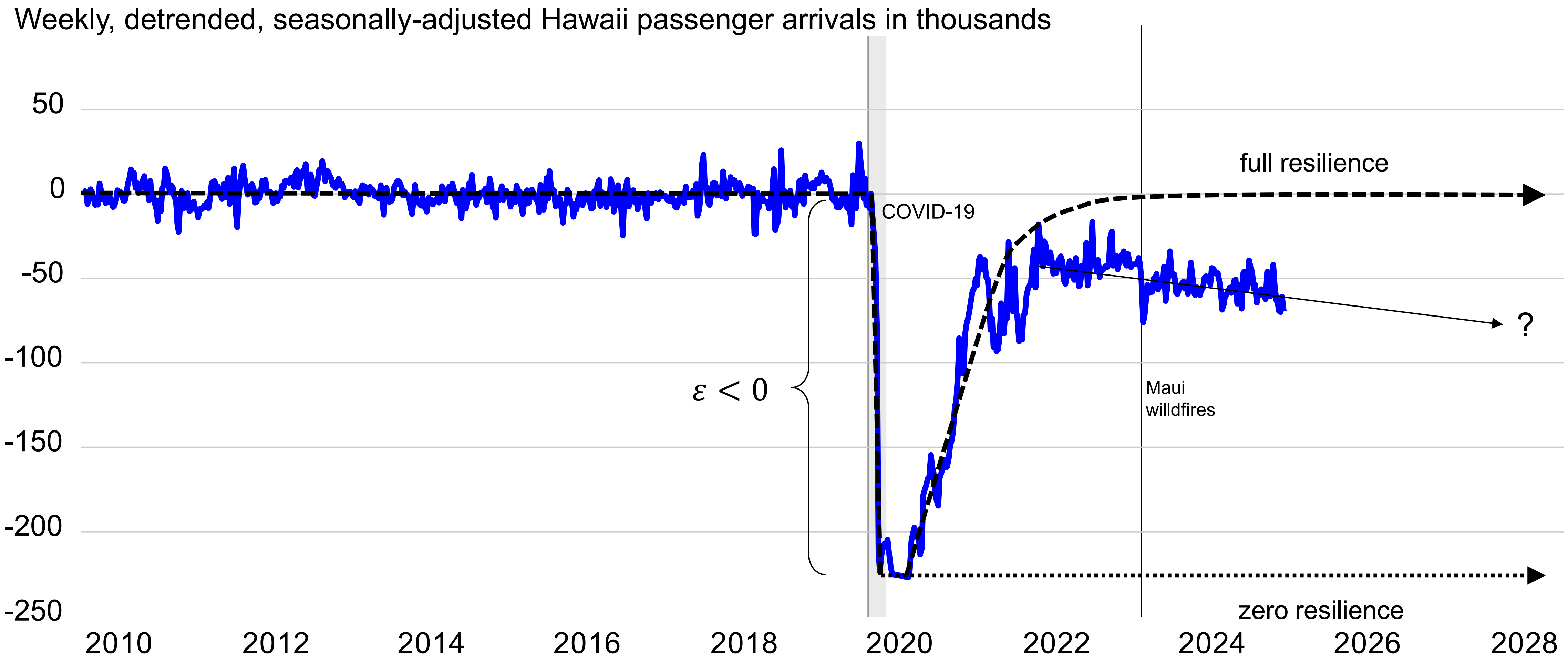
Theoretically: does economic system *adapt* to exogenous shock ($\varepsilon < 0$)?

A resilient stochastic process bounces back to the original stationary dynamic equilibrium



After Markus K. Brunnermeier (January 6, 2024), “Macrofinance and Resilience,” *American Finance Association Presidential Address*, Allied Social Science meetings, San Antonio, Texas (https://www.youtube.com/watch?v=z94l-G5gz4o). See also Markus K. Brunnermeier (December 2024), “Presidential Address: Macrofinance and Resilience,” *Journal of Finance* vol. **79** no. 6, pp.2683-3728

Practically: are statewide weekly Hawaii passenger arrivals resilient?



Sources: Hawaii DBEDT (https://dbedt.hawaii.gov/visitor/daily-passenger-counts/), deviations from 2010s trend in weekly Hawaii passenger arrivals, seasonally adjusted using an STP decompositionm through June 11, 2025; framework after Markus K. Brunnermeier (December 2024), "Presidential Address: Macrofinance and Resilience," *Journal of Finance* vol. **79** no. 6, pp.2683-3728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